PLASMA DISPLAY TV

Chassis: F64A(N_HD)_B450
Model : PL50B450B1DXZX

REVISADO
Por APITE4 fecha 9:25 , 16/07/2009

SERVICE Manual

PLASMA DISPLAY TV

PL50B450B1D

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2. Product Specification
3. Disassembly & Reassembly
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Refer to the service manual in the GSPN (see the rear cover) for the more information.

GSPN (Global Service Partner Network)

Area	Web Site
North America	service.samsungportal.com
Latin America	latin.samsungportal.com
CIS	cis.samsungportal.com
Europe	europe.samsungportal.com
China	china.samsungportal.com
Asia	asia.samsungportal.com
Mideast & Africa	mea.samsungportal.com

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1. Precaution

To avoid possible damage, electric shocks or exposure to radiation, follow the instructions below with regard to safety, installation, service and ESD.

1-1 Safety Precautions

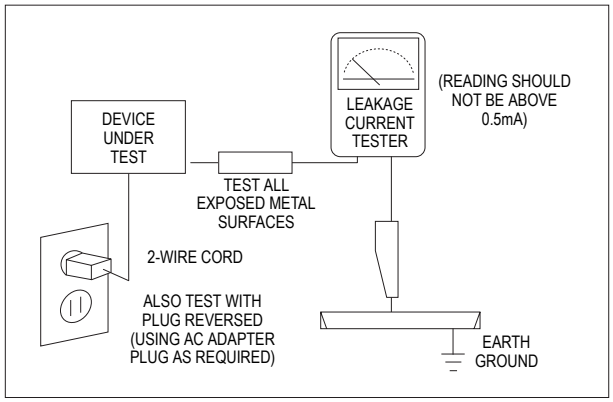
1. Make sure all protective devices are properly installed including non-metallic handles and compartment covers when installing or re-installing the chassis or chassis assemblies.

2. Make sure there aren't any gaps between the front and rear cover that anyone could insert they're fingers into and receive any electrical shock. These gaps include ventilation holes, cracks, etc.

   Errors may occur when the resistance is below 1.0 MΩ or over 5.2 MΩ. In these cases, make sure that the device is repaired before sending it back to the customer.

3. Check for Electricity Leakage (Figure 1-1)
   Warning: Do not use an insulated transformer for checking the leakage. Use only those current leakage testers or mirroring systems that comply with ANSIC 101.1 and the Underwriter Laboratory's specifications (UL1410, 59.7).

   Fig. 1-1 AC Leakage Test


LEAKAGE CURRENT TESTER
(READING SHOULD NOT BE ABOVE 0.5mA)
DEVICE UNDER TEST
TEST ALL EXPOSED METAL SURFACES
2-WIRE CORD
ALSO TEST WITH PLUG REVERSED (USING AC ADAPTER PLUG AS REQUIRED)
EARTH GROUND

4. A high voltage is maintained within the specified limits using safety parts, calibration and tolerances. When voltage exceeds the specified limits, check each special part.

5. Warning for Engineering Changes:
   Never make any changes or additions to the circuit design or the internal part for this product.
   Ex: Do not add any audio or video accessory connectors. This might cause physical damage. Furthermore, any changes or additions to the original design/engineering will invalidate the warranty.

6. Warning - Hot Chassis:
   Some TV chassis are directly connected to one end of the AC power cord for electrical reasons. Without insulated transformers, the product can only be repaired safely when the chassis is connected to the earth end of the AC power source.

   To make sure the AC power cord is properly connected, follow the instructions below. Use the voltmeter to measure the voltage between the chassis and the earth ground. If the measurement is over 1.0V, unplug the AC power cord and change the polarity before re-inserting it. Measure the voltage between the chassis and the ground again.

7. Some TV chassis are shipped with an additional secondary grounding system. The secondary system is adjacent to the AC power line. These two grounding systems are separated in the circuit using an unbreakable/unchangeable insulation material.

8. When any parts, material or wiring appear overheated or damaged, replace them with new immediately. When any damage or overheating is detected, correct this immediately and make a regular check of possible errors.

9. Check for the original shape of the lead, especially that of the antenna wiring, any sharp edges, the AC power and the high voltage power. Carefully check if the wiring is too tight, incorrectly placed or loose. Never change the space between the part and the printed circuit board. Check the AC power cord for possible damages. Keep the part or the lead away from any heat-emitting materials.

10. Safety Indication:
    Some electrical circuits or device related materials require special attention to their safety features, which cannot be viewed by the naked eye. If an original part is replaced with another irregular one, the safety or protective features will be lost even if the new one has a higher voltage or more watts.

    Critical safety parts should be marked with (⚠ ⚠). Use only regular parts for replacements (in particular, flame resistance and dielectric strength specifications). Irregular parts or materials may cause electric shock or fire.

1-2 Servicing Precautions

Warning 1: First carefully read the "Safety Instruction" in this service manual. When there is a conflict between the service and the safety instructions, follow the safety instruction at all times.

Warning 2: Any electrolytic capacitor with the wrong polarity will explode.

1. The service instructions are printed on the cabinet, and should be followed by any service personnel.
   (UL / FCC ¡æ Refer to the Back Cabinet)

2. Make sure to unplug the AC power cord from the power source before starting any repairs.
   (a) Remove or re-install parts or assemblies.
   (b) Disconnect the electric plug or connector, if any.
   (c) Connect the test part in parallel with the electrolytic capacitor.

3. Some parts are placed at a higher position than the printed board. Insulated tubes or tapes are used for this purpose. The internal wiring is clamped using buckles to avoid contact with heat emitting parts. These parts should be installed back to their original position.

4. After the repair, make sure to check if the screws, parts or cables are properly installed. Make sure no damage is caused to the repaired part and its surroundings.

5. Check for insulation between the blade of the AC plug and that of any conductive materials (i.e. the metal panel, input terminal, earphone jack, etc).

6. Insulation Check Process: Unplug the power cord from the AC source and turn the switch on. Connect the insulating resistance meter (500v) to the AC plug blade.

   The insulating resistance between the blade of the AC plug and that of the conductive material should be more than 1 MΩ.

7. Any B+ interlock should not be damaged.
   If the metal heat sink is not properly installed, no connection to the AC power should be made.

8. Make sure the grounding lead of the tester is connected to the chassis ground before connecting to the positive lead. The ground lead of the tester should be removed last.

9. Beware of risks of any current leakage coming into contact with the high-capacity capacitor.

10. The sharp edges of the metal material may cause physical damage, so protect yourself by wearing gloves during the repair.

11. Due to the nature of plasma display panels, partial after-images may appear if a still picture is displayed on the screen for a long period of time. This is caused by brightness deterioration due to the storage effect of the panel, and to prevent this from happening, we recommend that the brightness and contrast are reduced.
    (e.g.) Contrast: 25, Brightness: 50

1-3 Static Electricity Precautions

1. Some semi-conductive ("solid state") devices are vulnerable to static electricity. These devices are known as ESD. ESD includes the integrated circuit and the field effect transistor. To avoid any materials damage from electrostatic shock, follow the instructions described below.

2. Remove any static electricity from your body by connecting the earth ground before handling any semi-conductive parts or assemblies. Alternatively, wear a dischargeable wrist-belt. (Make sure to remove any static electricity before connecting the power source - this is a safety instruction for avoiding electric shock)

3. Remove the ESD assembly and place it on a conductive surface such as aluminum foil to prevent accumulating static electricity.

4. Do not use any Freon-based chemicals. Such chemicals will generate static electricity that causes damage to the ESD.

5. Use only grounded-tip irons for soldering purposes.

6. Use only anti-static solder removal devices. Most solder removal devices do not support an anti-static feature. A solder removal device without an anti-static feature can store enough static electricity to cause damage to the ESD.

7. Do not remove the ESD from the protective box until the replacement is ready. Most ESD replacements are covered with lead, which will cause a short to the entire unit due to the conductive foam, aluminum foil or other conductive materials.

8. Remove the protective material from the ESD replacement lead immediately after connecting it to the chassis or circuit assembly.

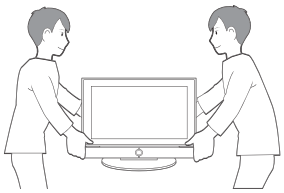
9. Take extreme caution in handling any uncovered ESD replacements. Actions such as brushing clothes or lifting your leg from the carpet floor can generate enough static electricity to damage the ESD.

CAUTION

These servicing instructions are for use by qualified service personnel only.
To reduce the risk of electric shock do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so.

1-4 Installation Precautions

1. For safety reasons, more than two people are required for carrying the product.



2. Keep the power cord away from any heat emitting devices, as a melted covering may cause fire or electric shock.

3. Do not place the product in areas with poor ventilation such as a bookshelf or closet. The increased internal temperature may cause fire.

4. Bend the external antenna cable when connecting it to the product. This is a measure to protect it from being exposed to moisture. Otherwise, it may cause a fire or electric shock.

5. Make sure to turn the power off and unplug the power cord from the outlet before repositioning the product. Also check the antenna cable or the external connectors if they are fully unplugged. Damage to the cord may cause fire or electric shock.

6. Keep the antenna far away from any high-voltage cables and install it firmly. Contact with the high-voltage cable or the antenna falling over may cause fire or electric shock.

7. When connecting the RF antenna, check for a DTV receiving system and install a separate DTV reception antenna for areas with no DTV signal.

8. When installing the product, leave enough space (4") between the product and the wall for ventilation purposes. A rise in temperature within the product may cause fire.

9. When moving a PDP with removable speakers, detach the speakers first before moving the main body. Moving the PDP main body without separating the speakers may cause the speakers to detach, possibly causing damage or injury.

2. Product Specification

2-1 Product Specification

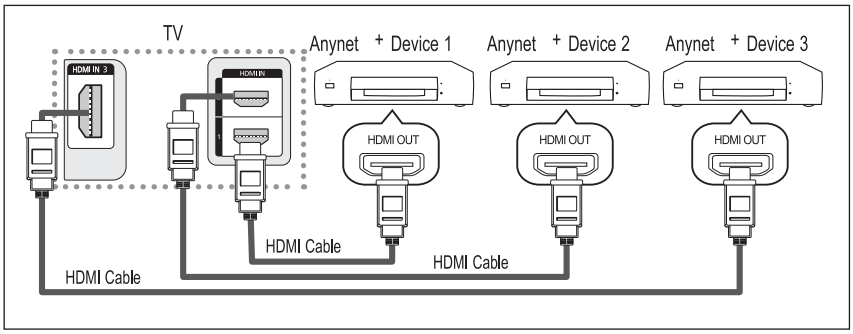
Features			
Block	Specification	Major IC	Remark
RF	Digital/Analog (DTV Built In)	NTSC/VSB/QAM Tuner KS1411	
PDP Module	Samsung SDI U1P Module	42"HD/50"HD	New Module
Power	Samsung/Dong-yang electro mechanics SMPS		
Video	NTSC 3.58, ATSC HDMI Component, PC	MSD2248	
Sound	SRS TruSuround HD, Dolby Digital	MSD2248, STA335W	Optical Output
Cabinet	B450 Design		

Specification		
Model	PL42B450B1D	PL50B450B1D
Screen Size	42 Inches (16:9)	50 Inches (16:9)
Dimensions (WxHxD)	41.5 x 2.9 x 25.7 inches (without stand) 41.5 x 12.4 x 28.3 inches (with stand)	48.0x 2.9x 29.4 inches (without stand) 48.0 x 12.4 x 31.8 inches (with stand)
Weight	53.1 lbs (without stand) 61.2 lbs (with stand)	69.0 lbs without stand 77.1 lbs with stand
PC Resolution	1024 x 768 @ 60Hz	1360 x 768 @ 60Hz
Power consumption	250W	350W
Voltage	AC 100~240V, 60Hz	
ANTENNA input	ANT AIR IN or CABLE IN ※ 75Ω unbalanced	
VIDEO input	AV1, AV2 COMPONENT1 - 480i/480p/720p/1080i/1080p COMPONENT2 - 480i/480p/720p/1080i/1080p PC HDMI1 : 480p/720p/1080i/1080p HDMI2(DVI Compatible) - 480p/720p/1080i/1080p HDMI3(SIDE AV) - 480p/720p/1080i/1080p ∗ 480i can be displayed on HDMI, however it is not contained in EDID data	
AUDIO input	AV1, AV2 COMPONENT1 - 480i/480p/720p/1080i/1080p COMPONENT2 - 480i/480p/720p/1080i/1080p PC DVI	
Audio Output	AUDIO (L/R)	
Speaker Output	10W+10W (40dB+40dB)	
New Features	Anynet+	

■ New Features explanation

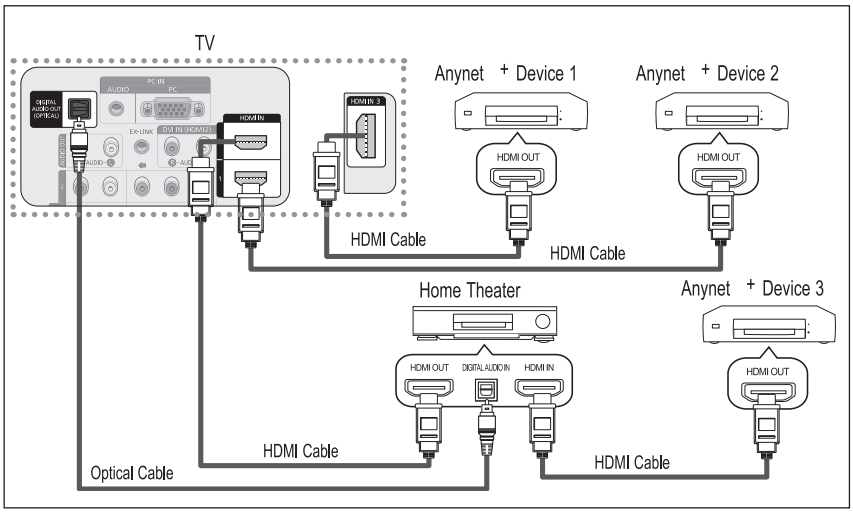
- Anynet+ : Anynet+ is an AV network system that enables you to control all connected Samsung AV devices with your Samsung TV's remote.

To directly connect to TV



Connect the [HDMI 1], [HDMI 2] or [HDMI 3] jack on the TV and the HDMI OUT jack of the corresponding Anynet + device using the HDMI cable.

To connect to Home Theater



1. Connect the [HDMI 1], [HDMI 2] or [HDMI 3] jack on the TV and the HDMI OUT jack of the corresponding Anynet + device using the HDMI cable.
2. Connect the HDMI IN jack of the home theater and the HDMI OUT jack of the corresponding Anynet + device using the HDMI cable.

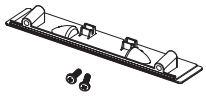
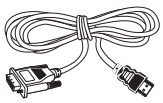
→ Connect the Optical cable between [Digital Audio Out (Optical)] on your TV and Digital Audio Input on the Home Theater.
→ Connect only one Home Theater.
→ You can listen to 5.1 channel sound through the home theater's speakers. Otherwise, you can only listen to 2 channel stereo sound in other cases. Make sure to connect the Digital Audio IN (Optical) of the home theater and the TV correctly to listen to TV sound through the home theater. However, you cannot listen to sound from the BD recorder that is sent to the home theater via the TV in 5.1 channel sound because the TV outputs only 2 channel stereo sound. Please see the manual for the home theater.
→ You can connect an Anynet + device using the HDMI cable. Some HDMI cables may not support Anynet + functions.
→ Anynet + works when the AV device supporting Anynet + is in the Standby or On status.
→ Anynet + supports up to 12 AV devices in total. Note that you can connect up to 3 devices of the same type.

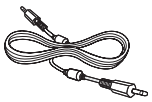
2-2 Specifications Analysis

※ ○: application, X: non-application

Model		PL42B450B1D	PL50B450B1D	PN42A450P1DXZA
Design				
Basic	Display Type	PDP TV	PDP TV	PDP TV
	Built-In Tuner	○	○	○
	Resolution	**1024 x 768**	**1365 x 768**	1024 x 768
	PDP Module	U1P	U1P	U1P
	Screen Size	42"	50"	42"
	Picture ratio	16 : 9	16 : 9	16 : 9
	Dimensions (WxHxD)	**41.5 x 28.5 x 12.4 inches**	**48.4 x 32.0 x 12.4 inches**	41.5 x 28.5 x 12.4 inches
	Weight	**67.24 lbs / 27.8 kg**	**81.57 lbs / 35 kg**	67.24 lbs / 30.5 kg
Picture	Brightness	**1,500 Cd/m2**	**1,300 Cd/m2**	1,500 Cd/m2
	Contrast Ratio	10000:1	10000:1	10000:1
	Picture Enhacer	X	X	X
	Comb Filter	○	○	○
Audio	Equalizer	5 Band	5 Band	5 Band
	Auto Volume Control	○	○	○
	Surround Sound	SRS TruSurround	SRS TruSurround	SRS TruSurround
	Speaker Output	10W + 10W	10W + 10W	10W + 10W
Features	PIP	**X**	**X**	X
	Double Window	**X**	**X**	X
	Caption	○	○	○
	Still Image	**X**	**X**	X
	EPG	○	○	○
	My Color Control	X	X	X
	Energy Saving	○	○	○
	Anynet	○	○	○
Connections	Antenna	1(Cable or Air)	1(Cable or Air)	1(Cable or Air)
	AV Input	2	2	2
	S-Video	**-**	**-**	-
	Component	2	2	2
	PC(D-SUB)	1	1	1
	DVI	X	X	X
	HDMI	3	3	3
	Optical	1	1	1
ETC	Speaker/Stand	Built-in Speaker	Built-in Speaker	Built-in Speaker

2-3 Accessories

Accessories		Item	Item code	Remark
Supplied Accessories		Remote Control Batteries	BN59-00856A 4301-000103	
		Power Cord	3903-000144	
		Owner's Instructions	BN68-02033A	
		Warranty Card Registration Card Safety Guide Manual	BN68-00797G BP68-00515B AA68-03242L	
		Cloth-Clean	BN63-01798B	
		Ferrite Core for Power Cord	3301-001305	
		Cover-Bottom Screws (2ea)	BN63-05300X 6003-001621	
Sold Separately		HDMI Cable 10 feet	BN39-00641A	
		HDMI/DVI cable 10 feet	BN39-00643A	
		Component Cables (RCA) 5 feet	BN39-00279A	

Accessories		Item	Item code	Remark
Sold Separately		Optical Cable	None	
		PC Cable 6 feet	BN39-00115A	
		PC Audio Cable 6 feet	BN39-00061B	
		Antenna Cable 10 feet	BN39-00333A	

MEMO

3. Disassembly & Reassembly

3-1 Overall Disassembly & Reassembly

⚠ Notice
- Be sure to separate the power cord before disassembling the unit.
- Discharge the capacitors first when separating PCB's with high capacity capacitors such as SMPS, X Main Board, Y Main Board, etc. (A spark may be generated by the electric charge, and there is danger of electronic shock.)
- Check that the cables are properly connected referring to the circuit diagram when disassembling or assembling the unit taking care not to damage the cables.
- Take care not to scratch the Glass Filter in the front.
- Assemble the boards in the reverse order of the disassembly.
- The plasma must be layed down on a flat padded surface for disassembly and reassembly.

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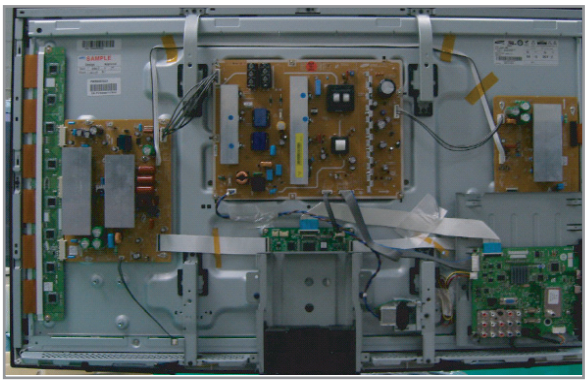

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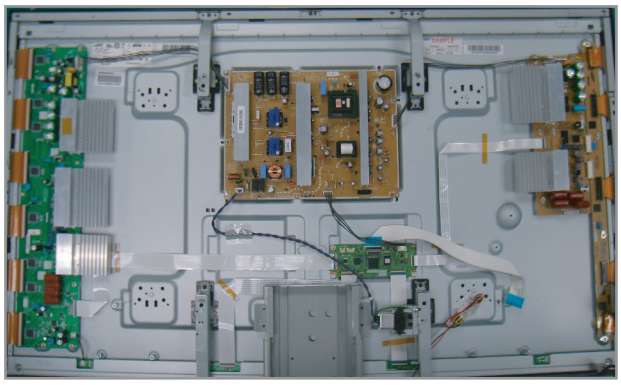
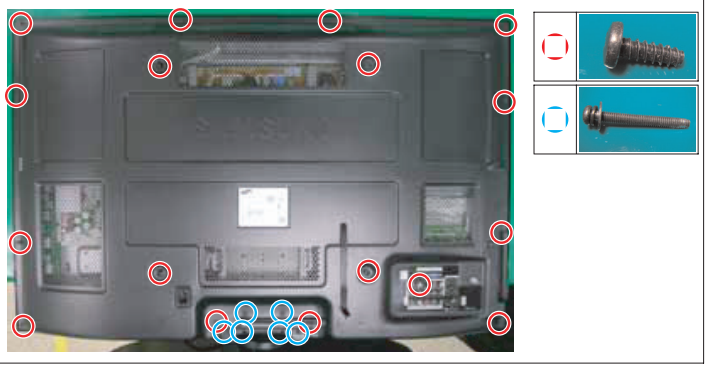
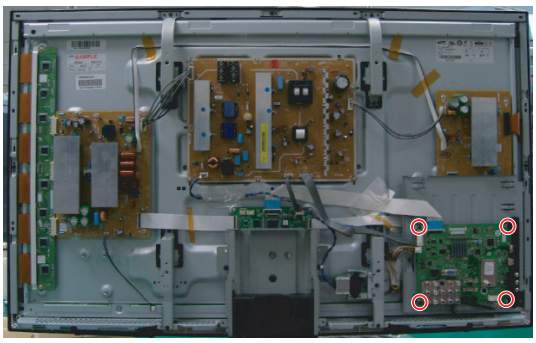
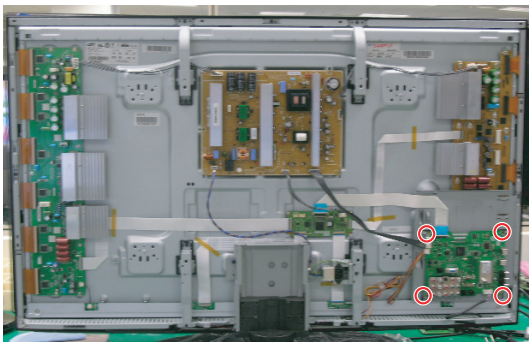


※ Screw Torque
- M3 : 7~9 Kgf/Cm
- M4 : 12 Kgf/Cm

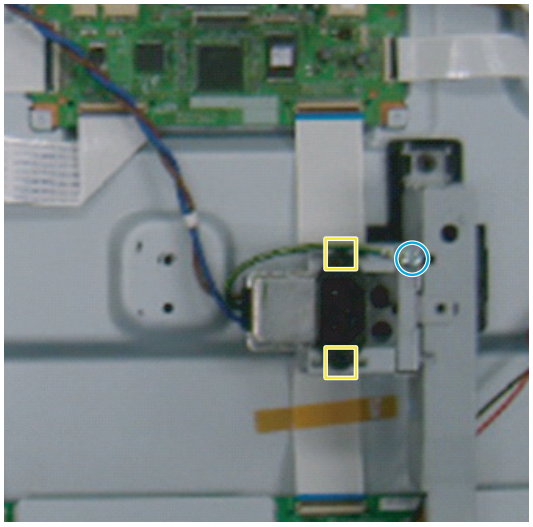
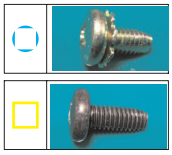
3-1-1 Separation of ASSY COVER P-REAR 42"/50"

Part Name	Description	Description Photo
Cover Rear	① Remove 17 screws. (◯) : BH,+,B,M4,L3,ZPC(BLK) ② Remove 6 screws. (◯) : PH,+,WSP,S,M4,L35,ZPC(BLK) ③ Remove the rear cover. ⚠: Please lay the PDP unit face down on a soft surface when removing the stand.	

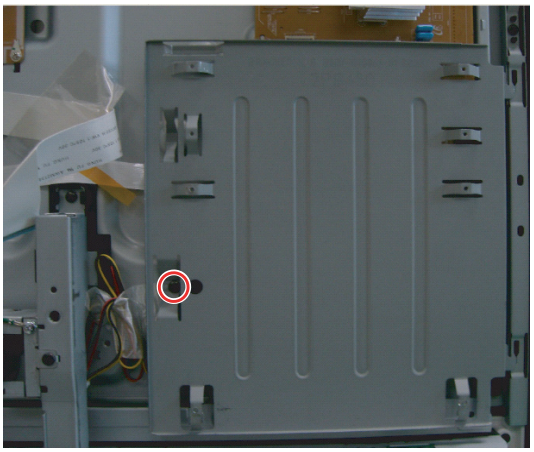
3-1-2 Separation of ASSY PCB MISC-MAIN

Part Name	Description	Description Photo
Main Board	① Detach all connectors from the Main Board. ② Remove 4 screws. : BH,+,B,M3,L6,ZPC(BLK),SWRCH18A,- ③ Remove the Main Board.	<42">  <50"> 

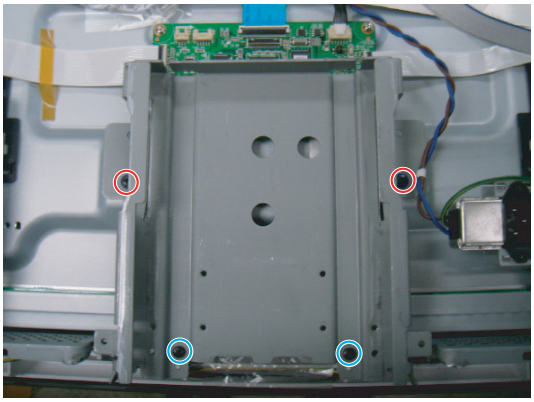
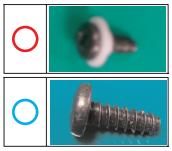
3-1-3 Separation of FILTER-EMI AC LINE 42"/ 50"

Part Name	Description	Description Photo
FILTER-EMI AC LINE	① Detach connector from SMPS. ② Remove 2 screw. (□) : PH,+,WWP,M3,L8,NI PLT ③ Remove 1 screws.(○) : BH,+,S,M4,L10,ZPC(BLK) ④ Separate FILTER-EMI AC LINE from bracket.	 

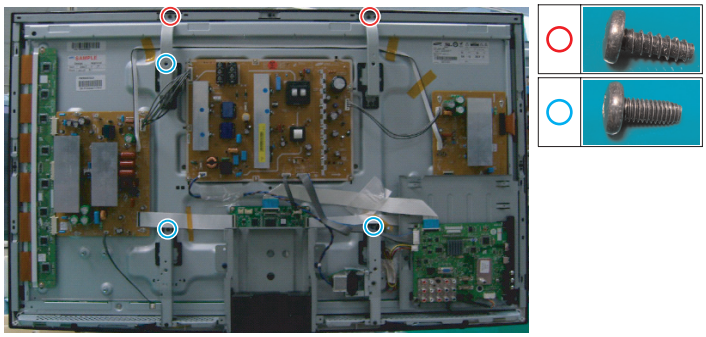
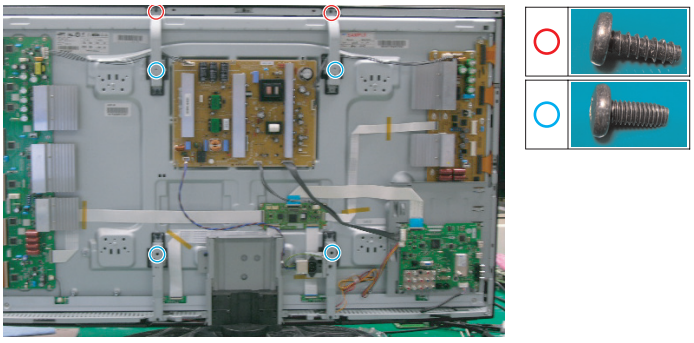
3-1-4 Separation of BRACKET-PCB 42"/50"

Part Name	Description	Description Photo
Bracket PCB	① Remove screw.(◯) : BH,+,B,M4,L3,ZPC(BLK) ② Remove the BRACKET-PCB.	

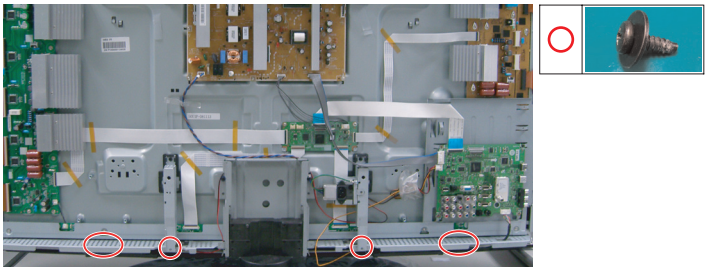
3-1-5 Separation of ASSY BRACKET 42"/50"

Part Name	Description	Description Photo
Bracket	① Remove 2 screws. (◯) : BH,+,PT,S Tite,M4,L10,ZPC(BLK) ② Remove 2 screws. (◯) : BH,+,B,M4,L3,ZPC(BLK) ③ Remove Bracket.	 

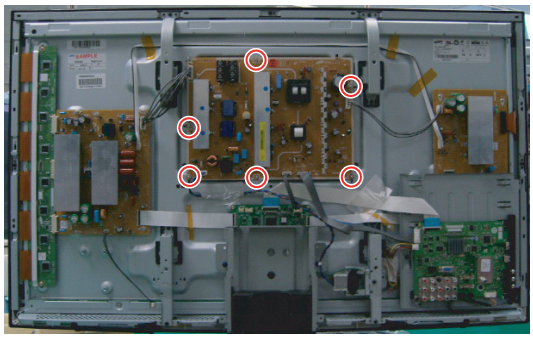
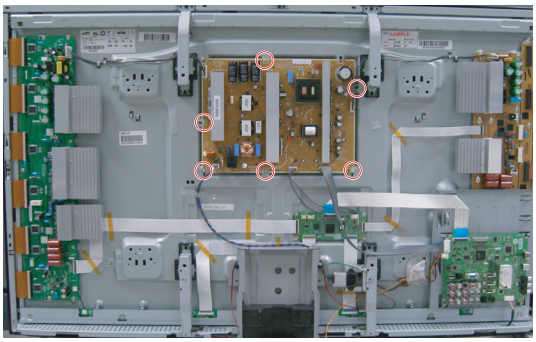
3-1-6 Separation of ASSY BRACKET P-WALL

Part Name	Description	Description Photo
42" Wall Bracket	① Remove 2 screws. (◯) : BH,+,B,M4,L3,ZPC(BLK) ② Remove 3 screws. (◯) : BH,+,S,M4,L10,ZPC(BLK) ③ Remove Wall Bracket. ⚠: Please lay the PDP panel face down on a soft surface when separating front cover.	
50" Wall Bracket	① Remove 2 screws. (◯) : BH,+,B,M4,L3,ZPC(BLK) ② Remove 4 screws. (◯) : BH,+,S,M4,L10,ZPC(BLK) ③ Remove Wall Bracket.	

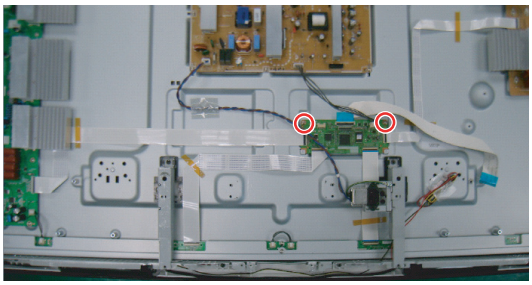
3-1-7 Separation of ASSY SPEAKER P 42"/50"

Part Name	Description	Description Photo
Speaker	① Remove 4 screws.(◯) : BH,+,WP,B,M4.0,L3,ZPC(BLK), SWRCH18A ② Remove the Speaker.	

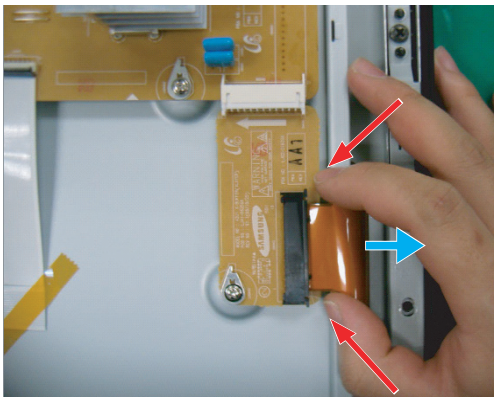
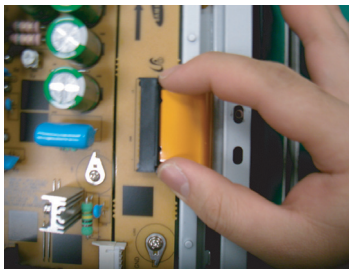
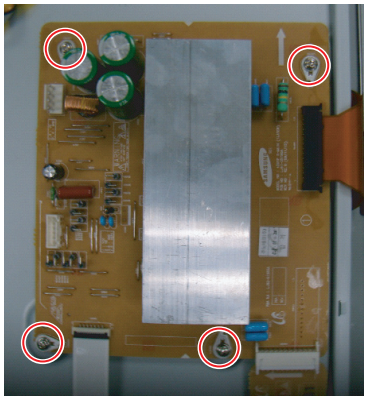
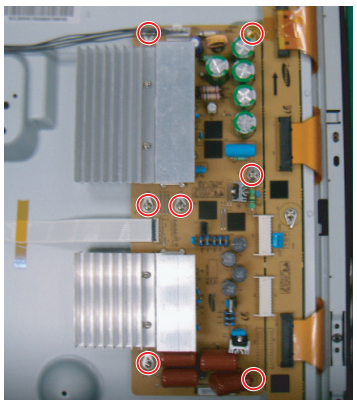
3-1-8 Separation of SMPS-PDP TV

Part Name	Description	Description Photo
42" SMPS	① Detach all connectors from the SMPS. ② Remove 6 screws. : PH,+,WWP,M3,L8,NI PLT ③ Remove the SMPS. ⚠: Wear gloves when handling the power board as there may be some remaining electrical charge in the capacitor. Specifically, avoid touching any part of the capacitor.	
50" SMPS	① Detach all connectors from the SMPS. ② Remove 6 screws. : PH,+,WWP,M3,L8,NI PLT ③ Remove the SMPS.	

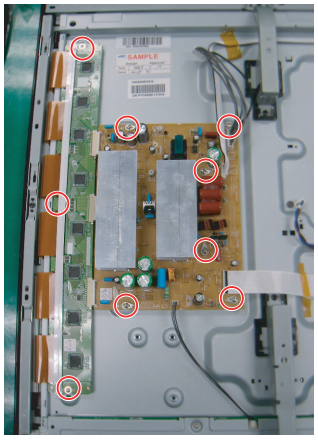
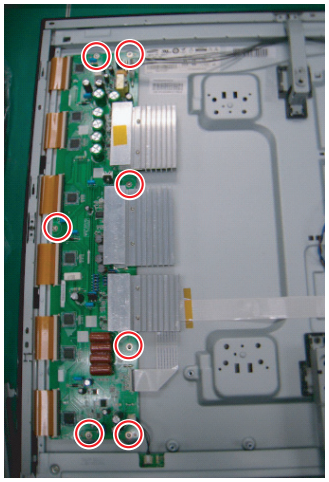
3-1-9 Separation of ASSY PDP MODULE P-LOGIC MAIN BOARD 42"/ 50"

Part Name	Description	Description Photo
Logic Board	① Detach all connectors from the Logic Main Board. ② Remove 2 screws. : WSP,PH,+,M3,L8,NI PLT ③ Remove the Logic Main Board.	

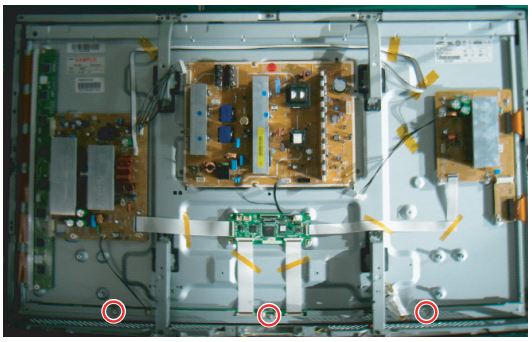
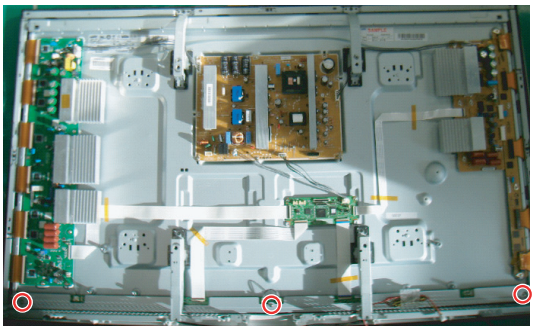
3-1-10 Separation of ASSY PDP MODULE P-X MAIN BOARD

Part Name	Description	Description Photo
42"/50" Flat able	① Detach all Connectors from the X Main Board. ※ To separate the Flat Cable of the X-Board, press the upper and the lower sides of the connector. ⚠: Pinch the sides, but then push down in the ribbon, it should slide out after that.	 
42" X-Main Board	① Remove 4 screws. : PH,+,WWP,M3,L8,NI PLT ② Remove the X-Main Board. (Separate the 4 connectors, 2 cables)	
50" X-Main Board	① Remove 7 screws. : PH,+,WWP,M3,L8,NI PLT ② Remove the X-Main Board. (Separate the 5 connectors, 4 cables)	

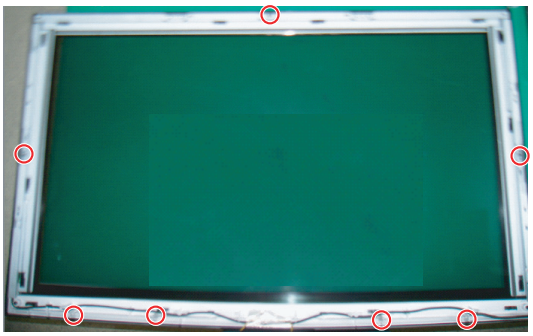
3-1-11 Separation of ASSY PDP MODULE P-Y MAIN BOARD

Part Name	Description	Description Photo
42"	① Detach the scan board connectors from the panel . ② Remove connectors from SMPS and logic board. ③ Remove 9 screws.	
50"	① Detach the scan board connectors from the panel . ② Remove connectors from smps and logic board ③ Remove 7 screws .	

3-1-12 Separation of ASSY PDP MODULE P-ADDRESS BUFFER BOARD

Part Name	Description	Description Photo
42" Buffer board shield	① Remove 3 screws. : PH,+,WWP,M3,L8,NI PLT ② Remove the buffer board shield.	
50" Buffer board shield	① Remove 3 screws. : PH,+,WWP,M3,L8,NI PLT ② Remove the buffer board shield.	

3-1-13 Separation of ASSY PANEL BRACKETS

Part Name	Description	Description Photo
Panel Brackets	① Remove 7 screws. (○) : BH,+,B,M4,L3,ZPC(BLK) ② Remove the Side Panel Brackets.	

4. Troubleshooting

4-1 Troubleshooting

4-1-1 First Checklist for Troubleshooting

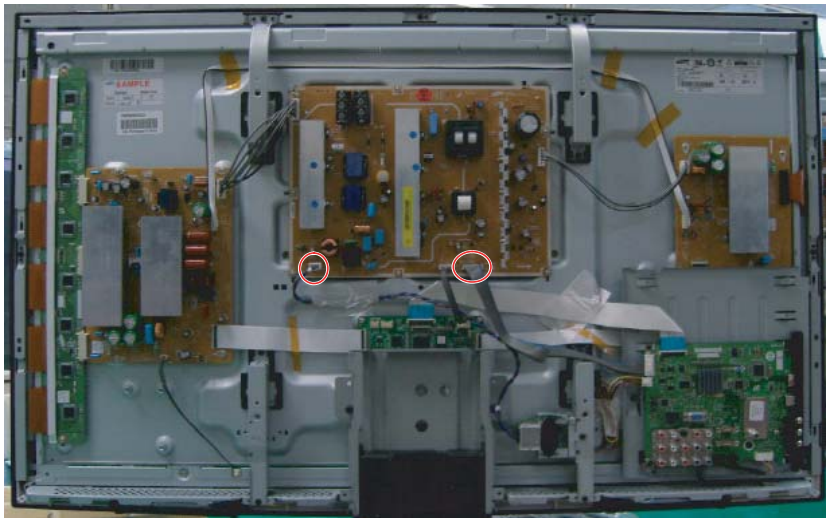
1. Check the various cable connections first.
   - Check to see if there is a burnt or damaged cable.
   - Check to see if there is a disconnected or loose cable connection.
   - Check to see if the cables are connected according to the connection diagram.

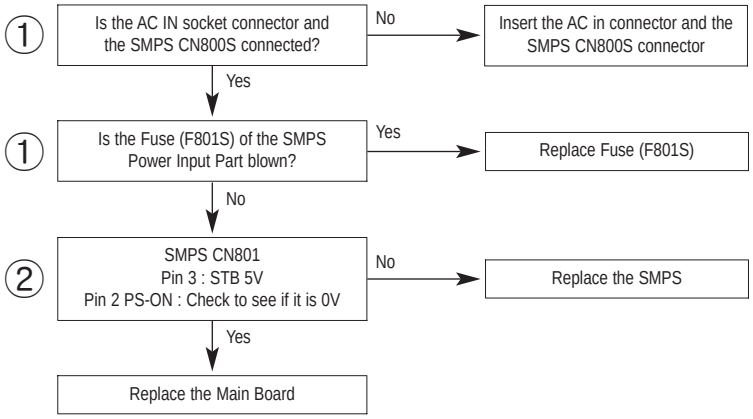
2. Check the power input to the Main Board.

3. Check the voltage in and out between the SMPS ↔ Main Board, between the SMPS ↔ X, Y Main Board, and between the Logic Boards.

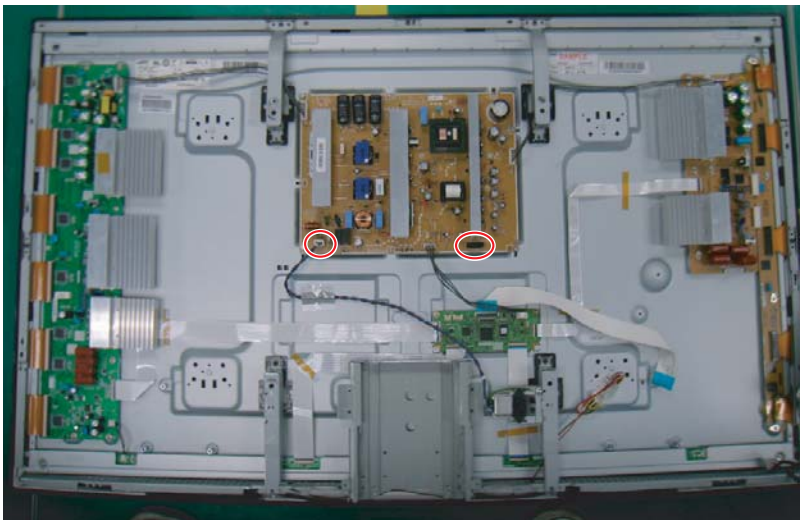
4-1-2 Checkpoints by Error Mode

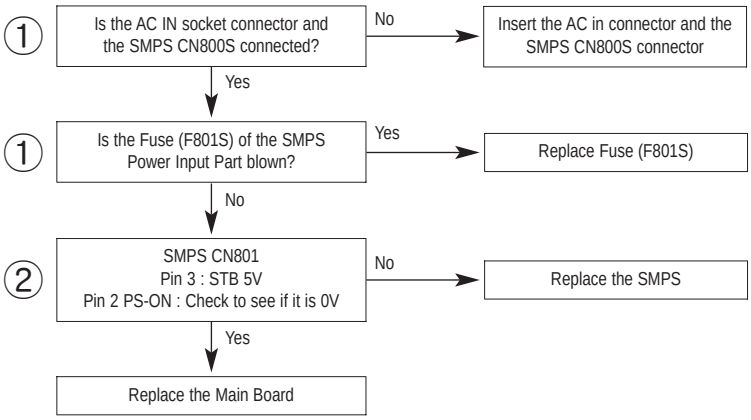
■ No Power (42")

Symptom	- The LEDs on the front panel do not work when connecting the power cord. - The SMPS relay does not work when connecting the power cord. - The units appears to be dead.
Major Checklist	The SMPS relay or the LEDs on the front panel does not work when connecting the power cord if the cables are improperly connected or the Main Board or SMPS is not functioning. In this case, check the following: - Check the internal cable connection status inside the unit. - Check the fuses of each part. - Check the output voltage of SMPS. - Replace the Main Board.
Troubleshooting Procedures	

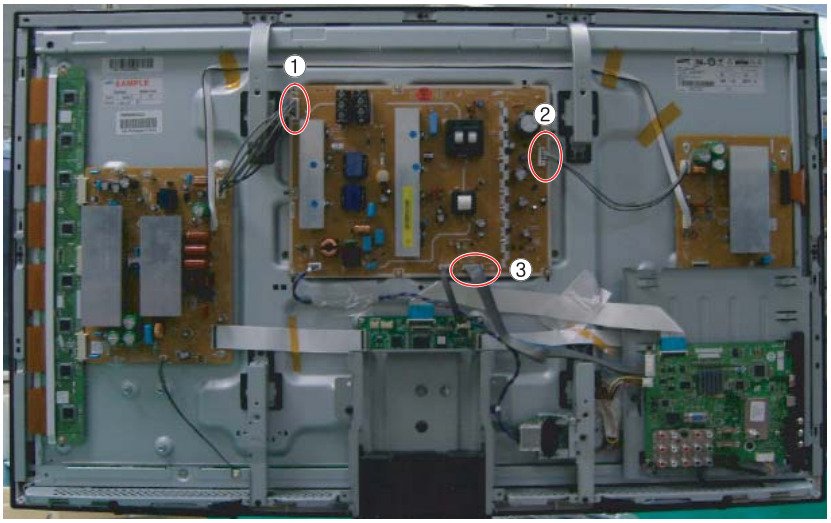
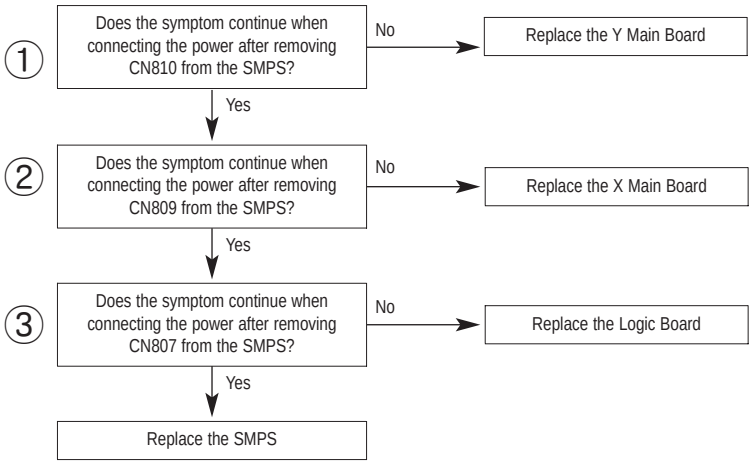


■ No Power (50")

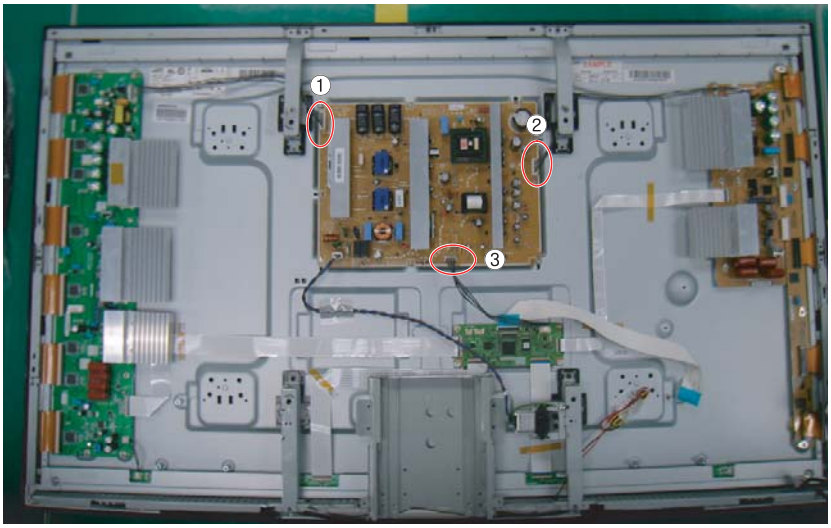
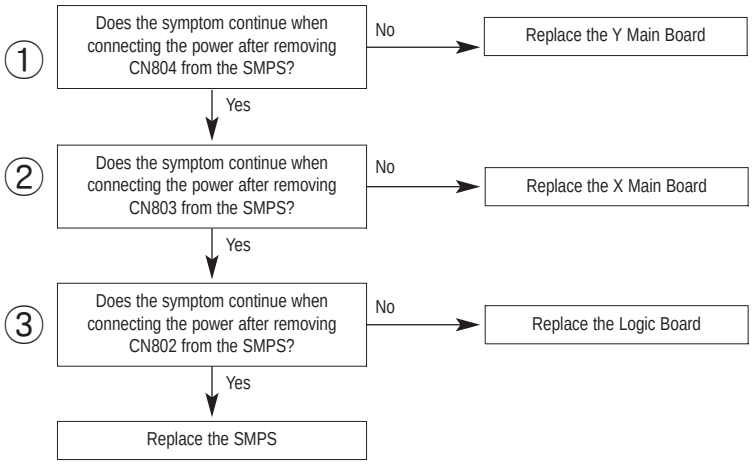
Symptom	- The LEDs on the front panel do not work when connecting the power cord. - The SMPS relay does not work when connecting the power cord. - The units appears to be dead.
Major Checklist	The SMPS relay or the LEDs on the front panel does not work when connecting the power cord if the cables are improperly connected or the Main Board or SMPS is not functioning. In this case, check the following: - Check the internal cable connection status inside the unit. - Check the fuses of each part. - Check the output voltage of SMPS. - Replace the Main Board.
Troubleshooting Procedures	



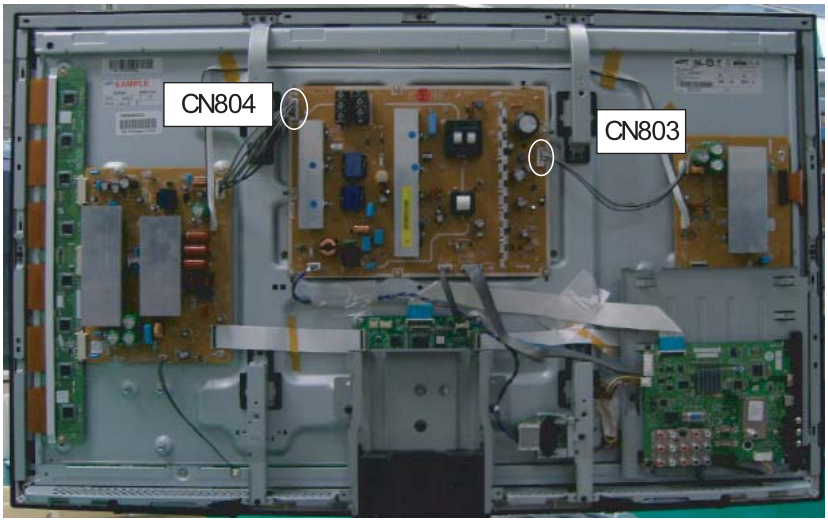
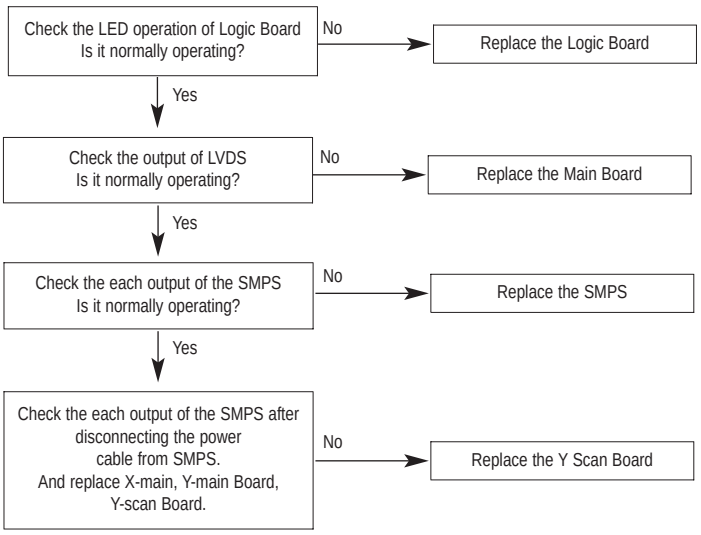
■ When the unit is repeatedly turned on and off (42")

Symptom	- The SMPS relay is repeatedly turned on and off.
Major Checklist	In general, the SMPS relay repeatedly turns on and off by the protection function due to a defect on a board connected to the SMPS. - Disconnect all cables from the SMPS, operate the SMPS alone and check if the SMPS works properly and if each voltage output is correct. - If the symptom continues even when SMPS is operated alone, replace the SMPS. - If the symptom is not observed when operating the SMPS alone, find any defective assemblies by connecting the cables one by one.
Troubleshooting Procedures	 
Caution	When separating and connecting the cables such as CN810, CN809, CN808, CN807 of the Main SMPS, CN4701 of the X Main Board, and CN5707 of the Y Main Board, a spark may be generated by the electric charge of the high capacity capacitor. Therefore, wait some time after disconnecting the power cord from the unit.

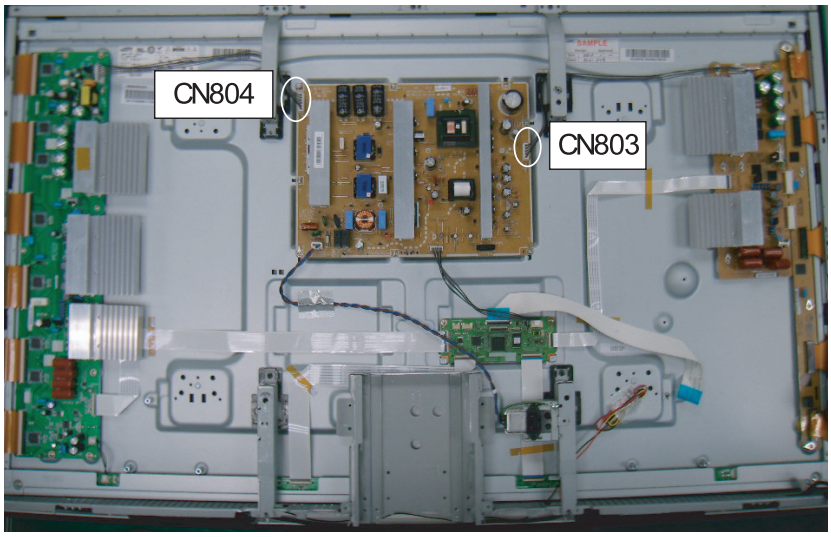
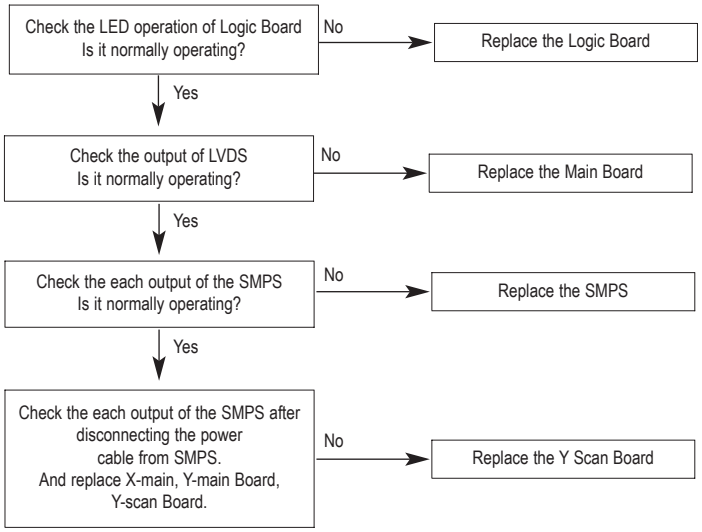
■ When the unit is repeatedly turned on and off (50")

Symptom	- The SMPS relay is repeatedly turned on and off.
Major Checklist	In general, the SMPS relay repeatedly turns on and off by the protection function due to a defect on a board connected to the SMPS. - Disconnect all cables from the SMPS, operate the SMPS alone and check if the SMPS works properly and if each voltage output is correct. - If the symptom continues even when SMPS is operated alone, replace the SMPS. - If the symptom is not observed when operating the SMPS alone, find any defective assemblies by connecting the cables one by one.
Troubleshooting Procedures	 
Caution	When separating and connecting the cables such as CN810, CN809, CN808, CN807 of the Main SMPS, CN4701 of the X Main Board, and CN5707 of the Y Main Board, a spark may be generated by the electric charge of the high capacity capacitor. Therefore, wait some time after disconnecting the power cord from the unit.

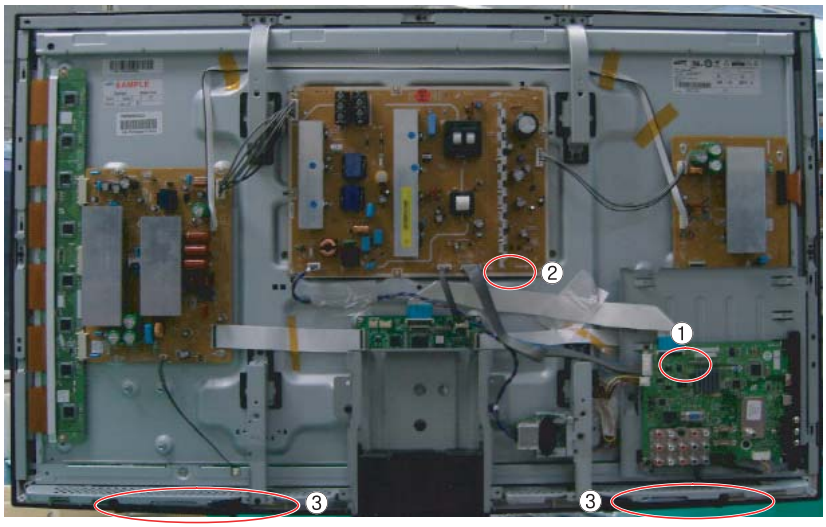
■ No Picture (When audio is normal)_42"

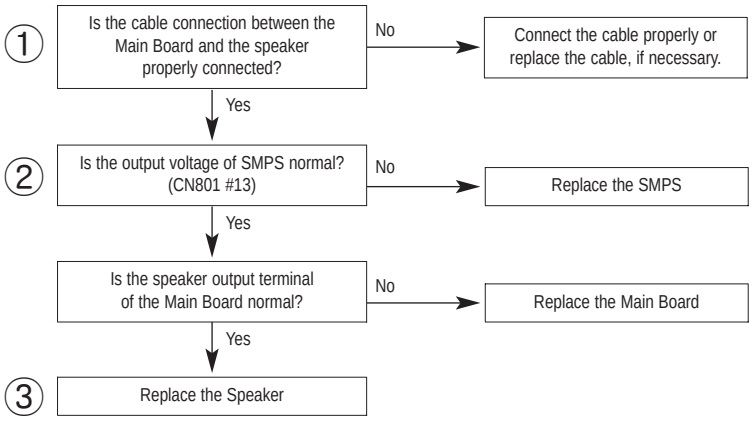
Symptom	- Audio is normal but no picture is displayed on the screen.
Major Checklist	- This may happen when the Main Board is functioning but the X, Y Main Board, Logic Board, or Y Buffer Boards are not. - The output voltage of the Main SMPS. - This may happen when the LVDS cable connecting the Main Board and the Logic Board is disconnected.
Troubleshooting Procedures	 
Caution	When separating and connecting the cables such as CN810, CN809, CN807 of the Main SMPS, CN4701 of the X Main Board, and CN5707 of the Y Main Board, a spark may be generated by the electric charge of the high capacity capacitor. Therefore, wait some time after disconnecting the power cord from the unit.

■ No Picture (When audio is normal)_50"

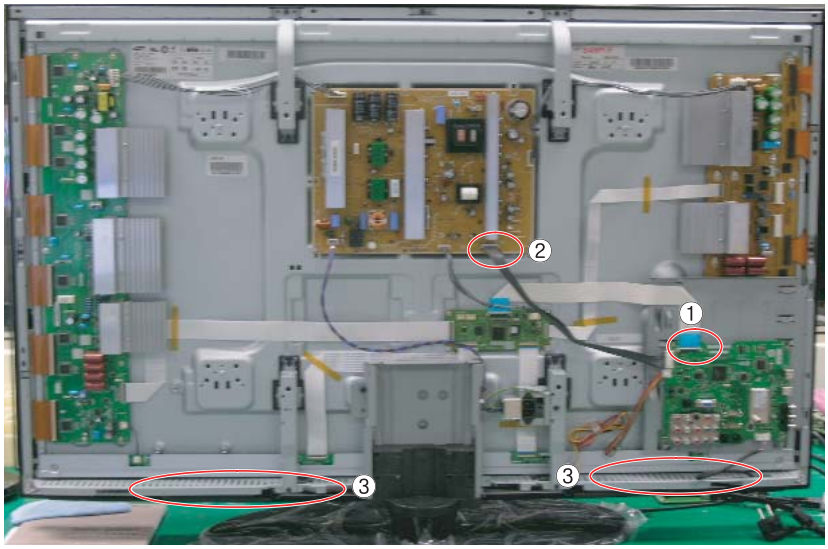
Symptom	- Audio is normal but no picture is displayed on the screen.
Major Checklist	- This may happen when the Main Board is functioning but the X, Y Main Board, Logic Board, or Y Buffer Boards are not. - The output voltage of the Main SMPS. - This may happen when the LVDS cable connecting the Main Board and the Logic Board is disconnected.
Troubleshooting Procedures	 
Caution	When separating and connecting the cables such as CN810, CN809, CN807 of the Main SMPS, CN4701 of the X Main Board, and CN5707 of the Y Main Board, a spark may be generated by the electric charge of the high capacity capacitor. Therefore, wait some time after disconnecting the power cord from the unit.

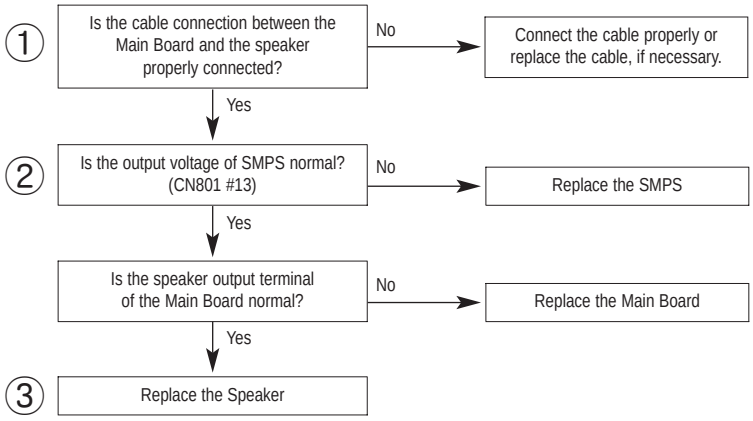
■ No Sound (42")

Symptom	- Video is normal but there is no sound.
Major Checklist	- When the speaker connectors are disconnected or damaged. - When the sound processing part of the Main Board is not functioning. - Speaker defect.
Troubleshooting Procedures	

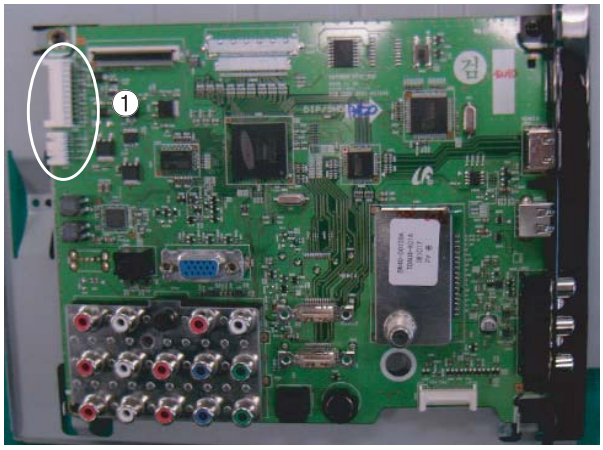
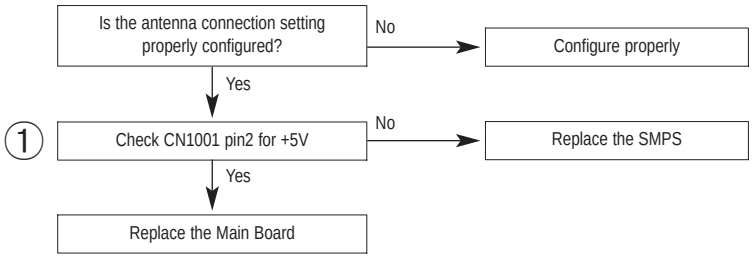


■ No Sound (50")

Symptom	- Video is normal but there is no sound.
Major Checklist	- When the speaker connectors are disconnected or damaged. - When the sound processing part of the Main Board is not functioning. - Speaker defect.
Troubleshooting Procedures	



■ No Video

Symptom	- A normal/cable network analog broadcast screen is blank or abnormal but OSD is OK.
Major Checklist	- Check the antenna connection settings (Air: NTSC / ATSC, Cable: NTSC) - Check the CVBS cable connection. - Check the power input of the Main board.
Troubleshooting Procedures	 

■ Drive Board Troubleshooting

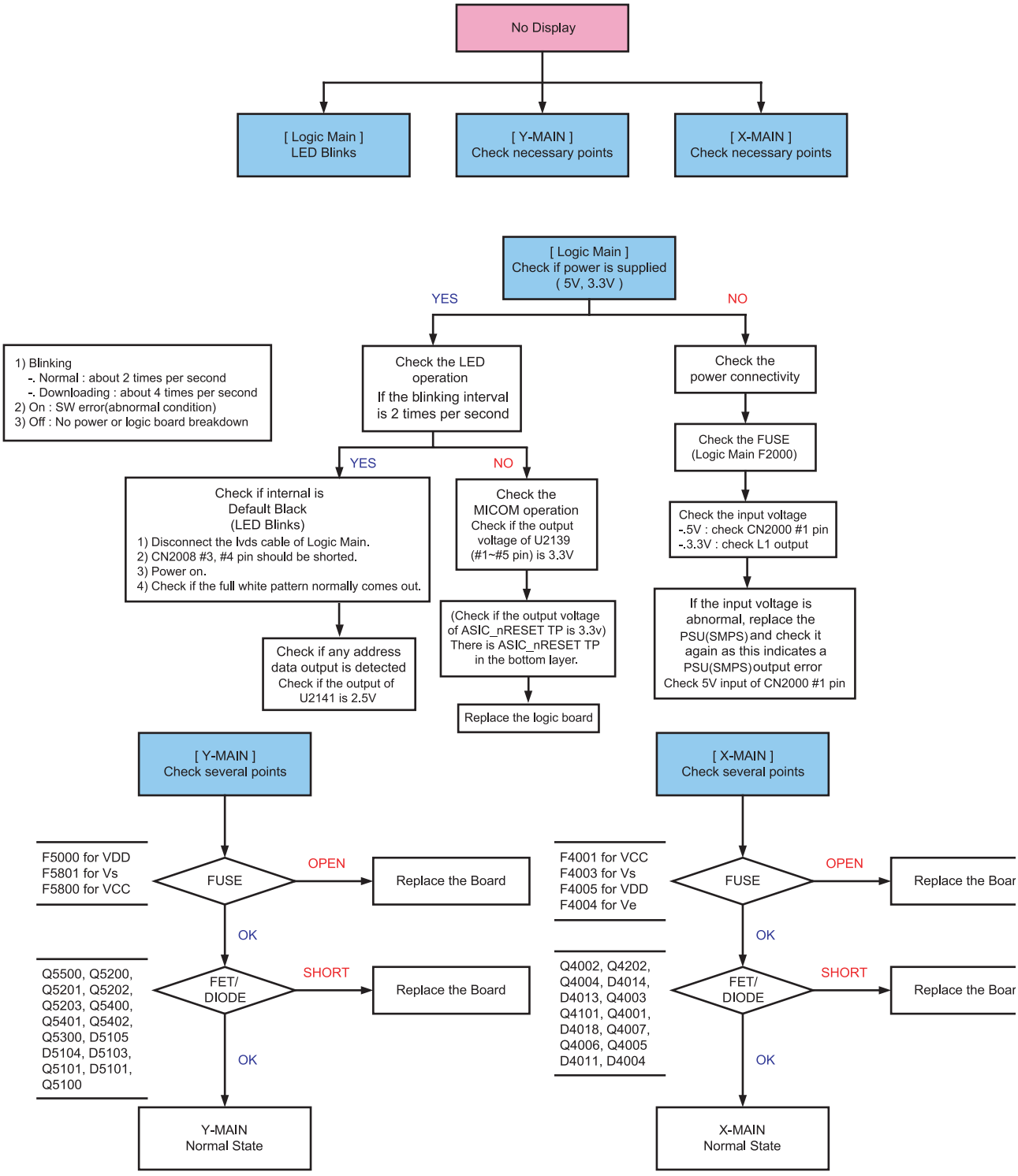
1) Troubleshooting Summary

Condition Name	Description	Related Board
No Voltage Output	Operating Voltage don't exist	PSU
No Display	Operating Voltage exist, but an Image doesn't exist on screen	Y-MAIN, X-MAIN, Logic Main, Cable
Abnormal Display	Abnormal Image (not open or short) is no screen	Y-MAIN, X-MAIN, Logic Main
Sustain Open	Some horizontal lines don't exist on screen	Scan Buffer, FPC of X/Y
Sustain Short	Some horizontal lines appear to be linked on screen	Scan Buffer, FPC of X/Y
Address Open	Some vertical lines don't exist on screen	Logic Main, Logic Buffer, TCP
Address Short	Some vertical lines appear to be linked on screen	Logic Main, Logic Buffer, TCP

2) Troubleshooting Procedure in Abnormal Conditions

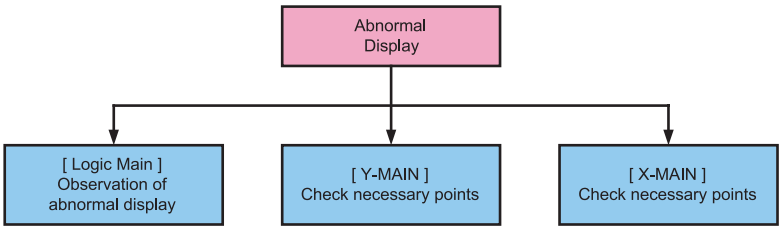
① No Display

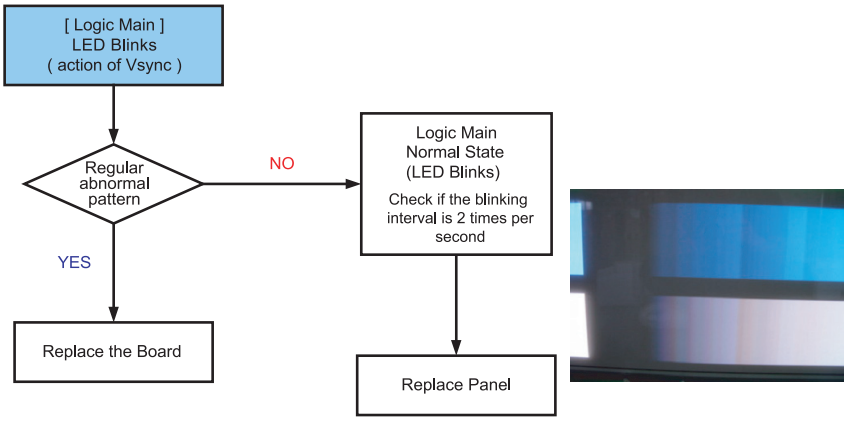
▶ No Display is related with Y-MAIN, X-MAIN, Logic Main and so on.
This page shows you how to check the boards, and the following pages show you how to find the defective board.

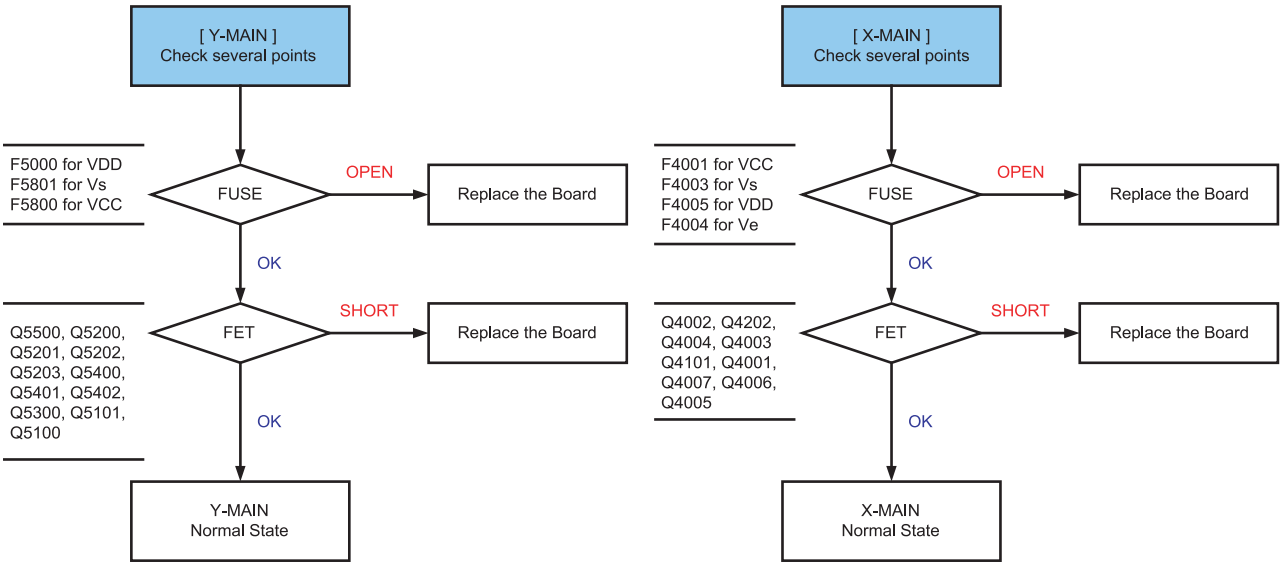


② Abnormal Display(Abnormal Image is on Screen.(except abnormality in Sustain or Address))

▶ Abnormal Display is related with Y-MAIN, X-MAIN, Logic Main and so on.
This page shows you how to check the boards, and the following pages show you how to find the defective board.


Abnormal Display
[Logic Main] Observation of abnormal display
[Y-MAIN] Check necessary points
[X-MAIN] Check necessary points

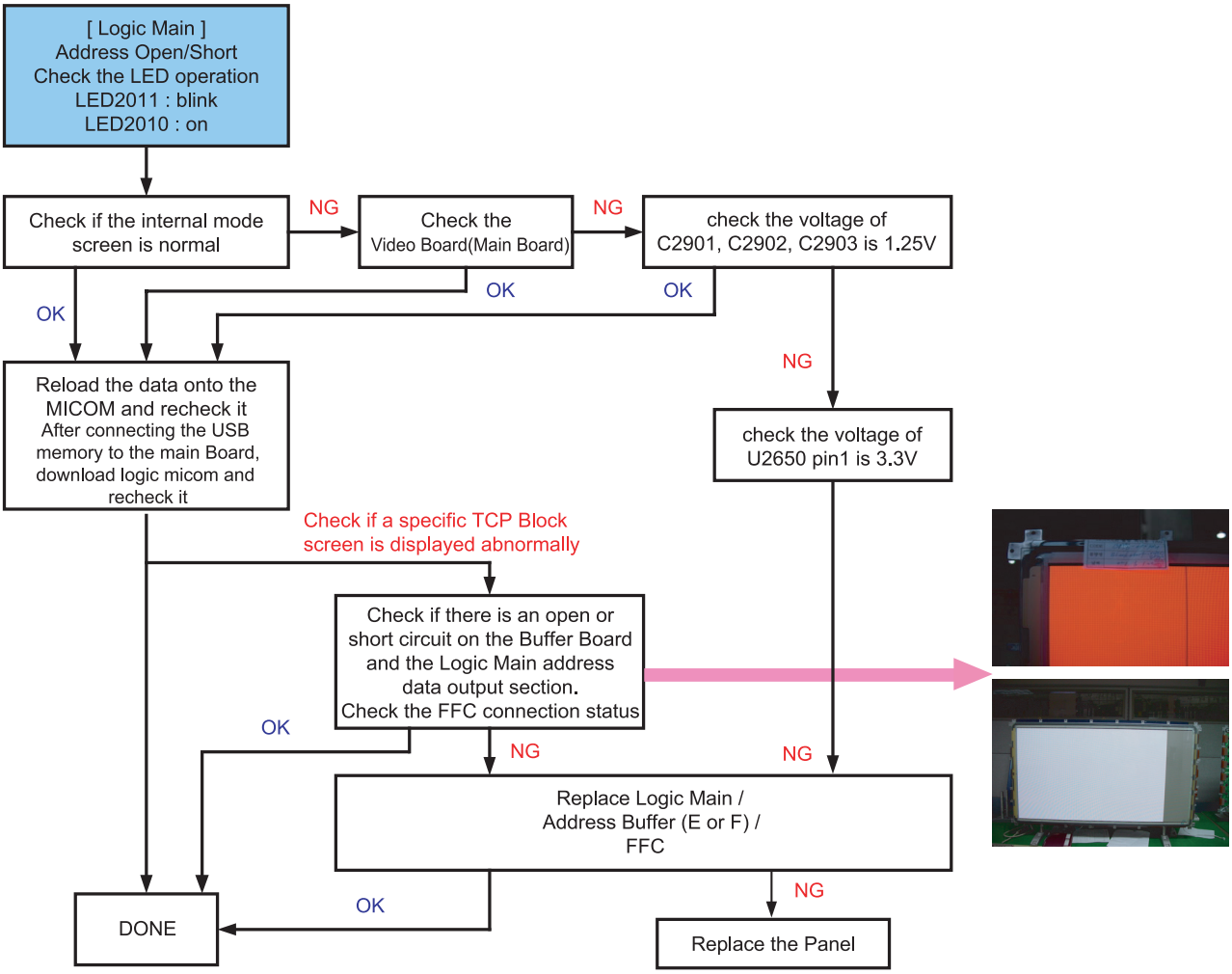

[Logic Main] LED Blinks (action of Vsync)
Regular abnormal pattern
NO
YES
Logic Main Normal State (LED Blinks)
Check if the blinking interval is 2 times per second
Replace the Board
Replace Panel



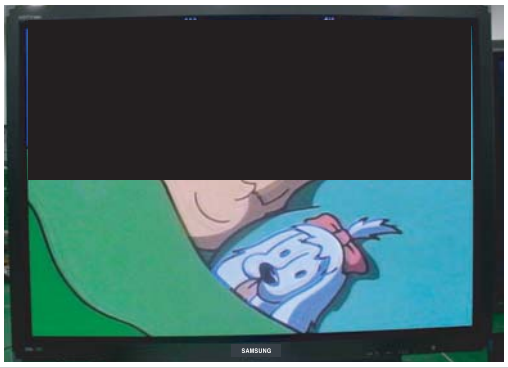
③ Address Open, Short

▶ Address Open and Short is related with Logic Main, Logic Buffer, FFC, TCP film and so on.
This page shows you how to check the boards, and the following pages show you how to find the defective board.

- Open : Black line appears in the picture.
- Short : Discolored vertical line appears in the full red or green pattern.


[Logic Main]
Address Open/Short
Check the LED operation
LED2011 : blink
LED2010 : on
Check if the internal mode screen is normal
NG
Check the Video Board(Main Board)
NG
check the voltage of C2901, C2902, C2903 is 1.25V
OK
OK
OK
NG
Reload the data onto the MICOM and recheck it
After connecting the USB memory to the main Board, download logic micom and recheck it
check the voltage of U2650 pin1 is 3.3V
Check if a specific TCP Block screen is displayed abnormally
Check if there is an open or short circuit on the Buffer Board and the Logic Main address data output section.
Check the FFC connection status
OK
NG
NG
Replace Logic Main / Address Buffer (E or F) / FFC
OK
NG
DONE
Replace the Panel

4-1-3 Troubleshooting

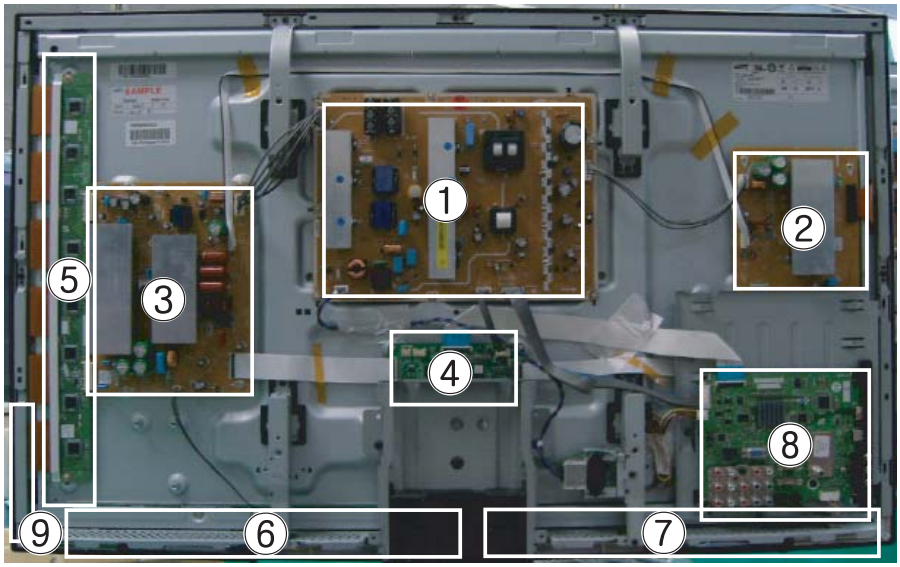
Symptom	Related Image	Causes and Countermeasures
A blank vertical cell (block) appears on the screen.		Address buffer defect - Replace the corresponding upper/lower buffers (E, F) COF defect (burnt) - Replace the module
A green screen appears when the TV is turned on.		The Scale is not reseting - Replace the Main board
The OSD box appears but there is no text.		Incorrect program version - Check the version of each program - Replace the Main board
A blank upper (or lower) block appears on the screen.		Upper/Lower Y Buffer defect - Replace the corresponding upper/lower buffers (E, F)

Symptom	Related Image	Causes and Countermeasures
Either the main or sub picture does not appear.		Replace the Main board
A vertical green line appears on the screen.		The SMPS voltage is incorrect - Adjust the SMPS voltage according to the voltage printed on the module label
Dim screen (blurred in red)		X-Main board defect - Replace the X-Main board
A blank screen appears		- Replace the Y-Main board

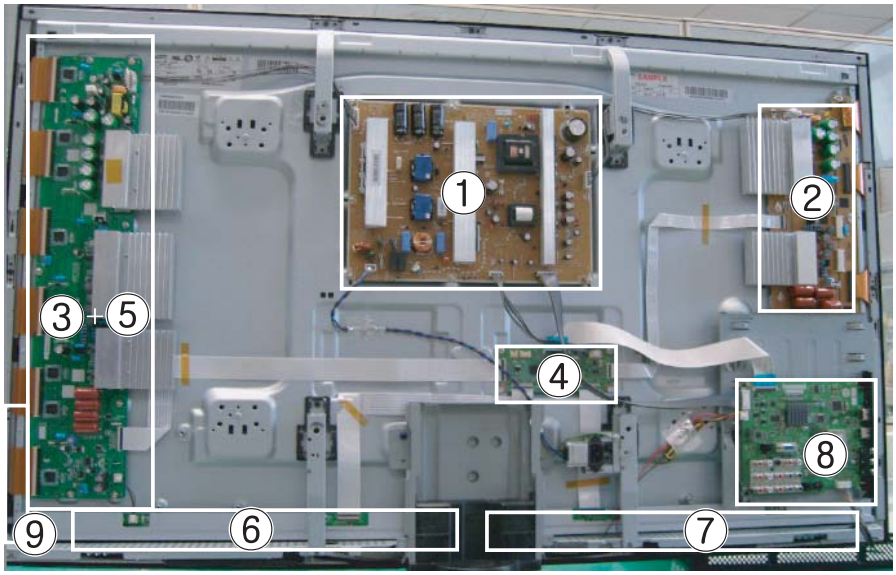
4-1-4 Troubleshooting Procedures by assembly

No	Assembly	Major Symptoms
1	SMPS-PDP TV	No power, Blank screen, the Relay repeats On and Off.
2	ASSY PDP MODULE P-X-MAIN	Blank screen
3	ASSY PDP MODULE P-Y-MAIN	Blank screen
4	ASSY PDP MODULE P-LOGIC MAIN	Blank screen, Screen noise
5	ASSY PDP MODULE P-Y-MAIN SCAN BUFFER	Row Bar screen is blank (42" Only)
6	ASSY PDP MODULE P-ADDRESS E BUFFER	Corresponding Buffer Board block screen is blank.
7	ASSY PDP MODULE P-ADDRESS F BUFFER	Corresponding Buffer Board block screen is blank.
8	ASSY PCB MISC-MAIN	No Power, Abnormal screen for each input source, PIP screen trouble, Sound trouble
9	ASSY BOARD P-FUNCTION	The side function key does not work properly

<PDP 42”>



<PDP 50”>



4-2 Adjustment

4-2-1 Service Instruction

■ Before performing service

1. Check if the measurement and test equipment is working properly.
2. Secure sufficient work space for disassembling the product.
3. Prepare a soft pad for disassembling the product.

■ Service adjustment item after replacement of Board

<If adjustment equipment is available>

① PDP Option of Factory Mode → set the Factory Data Type item as the suitable value of relevant model.
② Adjust Calibration of Factory Mode for each mode.
③ Adjust White Balance of Factory Mode.

<If adjustment equipment is not available>

① Write down the value of HDMI White Balance of Factory Mode before replacing Board.
② PDP Option of Factory Mode → set the Factory Data Type item as the suitable value of relevant model.
③ Set the value of HDMI White Balance with the value written down before.

4-2-2 How to Access Service Mode

1. General Remote

To Enter: **POWER OFF** → **MUTE** → **1** → **8** → **2** → **POWER ON**
(Interval between key strokes: less than 3 sec)

To Exit: **POWER OFF** → **POWER ON**

2. Factory Remote

To Enter: **POWER ON** → **INFO** → **FACTORY Key** (Interval between key strokes: less than 3 sec)

To Exit: **POWER OFF** → **POWER ON**
Press the Factory key twice with a key stroke interval of more than 1 second (Pressing once enters Aging Mode)

3. Settings when entering Factory mode
- Sharp Screen (Dynamic), Color Tone (Cool1), Factory (Dynamic CE Off), DNIe(Off)

4. Adjustment Procedures
- Channel ▲ ▼ Key : Select an item.
- Volume ◀ ▶ Key : Adjust the value up or down.
- MENU Key : Save the changes to the EEPROM and return to the higher-level mode.
- Using the Numeric (0~9) keys, you can select a channel.
- Using the SOURCE key, you can switch AV modes.

5. Initial SERVICE MODE DISPLAY State

```
Option
ADC/WB
Control
Advanced
Expert
T-STL5PAUSFC-XXXX
DTP-LP-XXXX-XX
DTP-LP-App-XXXX-XX
Option : 6110 00
ADC : HDMI O COMP O PC O AV O
EDID : SUCCESS
HDCP : SUCCESS
Build Date : XX-XX-XXXX
Date Of Purchase : XX/XX/XX
```

※ The version of the firmware displayed at the bottom of the screen may differ and the firmware is subject to change for the improvement of product functions.

※ If you have adjusted the settings in Service Mode, you have to reset the product.

※ If you exit Service Mode without reset, DNIe vlaue keeps Off regardless of setting up the user.

4-2-3 Factory Data

1. Option

Item	Data	Range
Factory Reset		
Type	58FNfK1	
Model	PB550	PB560/PB550/PB530/PB450/PB430/PB540/PB420/PB410
TUNER		
Region		
DDR	Off	On / Off
Light Effect	Off	On / Off
Exhibition Mode	Off	On / Off

2. ADC/WB

ADC

Item	Default data	Range
AV Calibration	Success	Success / Failure
Comp Calibration	Success	Success / Failure
PC Calibration	Success	Success / Failure
HDMI Calibration	Success	Success / Failure

ADC Target

Item	Default data	Range
1st_AV_Low	18	0 ~ 255
1st_AV_High	220	0 ~ 255
1st_AV_Delta	1	0 ~ 255
1st_COMP_Low	16	0 ~ 255
1st_COMP_High	235	0 ~ 255
1st_COMP_Delta	1	0 ~ 255
1st_PC_Low	2	0 ~ 255
1st_PC_High	253	0 ~ 255
1st_PC_Delta	1	0 ~ 255
2nd_Low	1	0 ~ 255
2nd_High	235	0 ~ 255
2nd_Delta	1	0 ~ 255

ADC RESULT

Factory Name	Default data				Range
	AV / RF	Component	HDMI / DTV / HDMI-PC	PC	
1st_AV_Gain	136	134	136	192	0 ~ 255
1st_AV_Offset	136	134	136	192	0 ~ 255
1st_Comp_Gain	136	134	136	192	0 ~ 255
1st_Comp_Gain_Cb	107	67	100	32	0 ~ 255
1st_Comp_Gain_Cr	107	67	100	32	0 ~ 255
1st_Comp_Offset	107	67	100	32	0 ~ 255
1st_Comp_Offset_Cb	136	134	136	192	0 ~ 255
1st_Comp_Offset_Cr	136	134	136	192	0 ~ 255
1st_PC_R_Gain	136	134	136	192	0 ~ 255
1st_PC_G_Gain	107	67	100	32	0 ~ 255
1st_PC_B_Gain	136	134	136	192	0 ~ 255
1st_PC_R_Offset	136	134	136	192	0 ~ 255
1st_PC_G_Offset	136	134	136	192	0 ~ 255
1st_PC_B_Offset	107	67	100	32	0 ~ 255
2nd_R_Offset	107	67	100	32	0 ~ 255
2nd_G_Offset	107	67	100	32	0 ~ 255
2nd_B_Offset	136	134	136	192	0 ~ 255
2nd_R_Gain	136	134	136	192	0 ~ 255
2nd_G_Gain	136	134	136	192	0 ~ 255
2nd_B_Gain	107	67	100	32	0 ~ 255

WB

Factory Name	Default data				Range
	AV / RF	Component	HDMI / DTV / HDMI-PC	PC	
Sub Brightness	128	128	128	128	
R_Offset	512	512	512	512	
G_Offset	512	512	512	512	
B_Offset	512	512	512	512	
Sub Contrast	128	128	128	128	
R_Gain	512	512	512	512	
G_Gain	512	512	512	512	
B_Gain	512	512	512	512	
Movie R Offset	128	128	128	128	
Movie B Offset	512	512	512	512	
Movie R Gain	512	512	512	512	
Movie B Gain	512	512	512	512	

3. Control

EDID

Item	Default data	Range
EDID ON/OFF	Off	On / Off
EDID WRITE ALL	Success	Success / Failure
EDID WRITE	Success	Success / Failure
EDID WRITE	Success	Success / Failure
EDID WRITE	Success	Success / Failure
EDID WRITE	Success	Success / Failure
EDID WRITE	Success	Success / Failure
EDID VERSION	HDMI 1.3	HDMI 1.2 / HDMI 1.3

Sub Option

Item	Default data	Range
Mute Time(VIDEO)	4	0 ~ 10
ready	Failure	Success / Failure
Hotplug	On	On / Off
Hotplugcontrol	On	On / Off
Spread Spectrum		
Auto Power	On	On / Off
DDR		
Arab	Off	On / Off
NT Conversion	Off	On / Off
Mirror	On	On / Off
HDMI EQ1	Middle	Low / Middle / High / Strong
HDMI EQ2	Middle	Low / Middle / High / Strong
HDMI EQ3	Middle	Low / Middle / High / Strong
HDMI EQ4	Middle	Low / Middle / High / Strong
EER Count		
WM Calib		
Panel Enter Key		
Panel Display Time	0Hr	
CHECKSUM	0x0000	
View Log		
Font Data Viewer		
Dimm Type	EXT	INT / EXT / INT_NEG / INT_POS
Gamma	Off	Off / 0.85 / 0.88 / 0.90 / 0.93 / 0.95 / 0.98
Carrier Mute	on	On / Off
Anynet+	On	On / Off
HPD Polarity		
High Devi	Off	On / Off
Volum Curve	NT	NT / EU / EA
HotPlug Delay	9	0 ~ 63
HP Ident	Low	Low / High
PC Ident	On	On / Off
Language	China	
Info Live		
Watchdog	On	On / Off
LVDS Format	VESA	JEDIA / VESA
OSD Resolution	1920*1080	
Bus Stop		
OTA Code		
Panel Auto Setting		
OTA Duration Test		
Alternate Del		
Ignore VCT Version	Off	On / Off

PDP Option

Item	Default data	Range
PIXEL SHIFT TEST	Off	on/off
LOGIC CONNECT	off	on/off
PATTERN SELECT (Logic Board)	0	
PANEL VERSION	UF1A	
PANEL INCH	58FHD	
PANEL TYPE	92H	
PANEL TEMPERATURE	31	
LOGIC SW VERSION	xx-xx-xx	
LOGIC SW CHECKSUM	371H	
SAPC_Timer	On	on/off
APC_Speed	Slow	Slow/Fast
LOGIC USB D/L	off	
Auto PC		
Energy Saving		
Cloning	TV to USB	
Cloning	USB to TV	

Hotel option

Item	Default data	Range
Hotel Mode	Off	On / Off
Power On Channel	3	
Power On Band	Air	Air/STD/HRC/IRC
Power On Source	TV	TV/COMP/HDMI1/HDMI2/HDMI3/HDMI4
Power On Volume	0	0~100
Min Volume	0	0~100
Max Volume	100	0~100
Panel Button Lock	Off	On / Off / Power
Pic Menu Lock	Off	On / Off
Music Mode (AV)	Off	On / Off
Music Mode (PC)	Off	On / Off
Music Mode (Comp)	Off	On / Off
Music Mode BLU	Off	On / Off
Menu Display	off	On / Off
Power On Option	Power on	Power on/last option/standby
Program Ch		
Original Ch/Src		

Shop Option

Item	Default data	Range
Shop Mode	Off	On / Off
USB DEMO ON (SEC)		
USB DEMO OFF (SEC)		

4. Advanced Enter '0'key four times.

FBE

Item	Default data	Range
Pattern Select	0	
B-Slope Gain	50	
B-Tilt Min	40	
B-Tilt Max	140	
Lfunc-Basis	80	
Hfunc-Basis	85	
Mean-Offset1	30	
Mean-Offset2	235	
Mean Slope	112	
ACR Offset	15	
ACR Th1	10	
ACR Th2	110	
Skin Enable	1	
Skin Uv	138	
Mskin Uv	140	
Sub Color	128	
Msub Color	112	

WB Movie

Item	Default data	Range
WB Movie	Off	On / Off
Color Mode	---	Dynamic / Standard / Movie
Color Tone	---	Cool / Normal / Warm1 / Warm2
Msub Brigh	---	0 ~ 255
Msub Contr	---	0 ~ 255
W1_RGAIN	---	0 ~ 255
W1_BGAIN	---	0 ~ 255
W1_ROFFS	---	0 ~ 255
W1_BOFFS	---	0 ~ 255
W2_RGAIN	---	0 ~ 255
W2_BGAIN	---	0 ~ 255
W2_ROFFS	---	0 ~ 255
W2_BOFFS	---	0 ~ 255
N_RGAIN	---	0 ~ 255
N_BGAIN	---	0 ~ 255
N_ROFFS	---	0 ~ 255
N_BOFFS	---	0 ~ 255
Movie Contr	---	3 ~ 100
Movie Brigh	---	2 ~ 100
Movie Color	---	1 ~ 100
Movie Sharp	---	0 ~ 100
Movie Tint	---	0 ~ 50
Movie BkLight	---	0 ~ 10
M.Gamma	---	Off / 0.85 / 0.88 / 0.90 / 0.93 / 0.95 / 0.98 / M1 / M2 / M3 / M4
M_Sub Gamma	---	-3 ~ +3

EPA Standard

Item	Default data	Range
Std Contr	95	0 ~ 100
Std Bright	45	0 ~ 100
Std Sharp	50	0 ~ 100
Std Color	50	0 ~ 100
Std Tint	50	0 ~ 100
Std Backlight	7	0 ~ 10

ADJUST

Item	Default data	Range
Dynamic Dimming	Off	On / Off
LNA Plus		
Power Key Protect	Off	On / Off
Uart Select	Auto Wall	
Debug Mode	Debug Off	
Back End Mute		
PDP FRC		
Visual Test	Disable	
Standby Mode Time	45 Min	
Delete alt.ver	2 Flash	
OTA confirm Time	90 Min	2 Min / 90 Min
OTA limit Time	3 Hour	3 Min / 3 Hour
Dynamic CE	Off	On / Off
FWC		
1080p 48Hz	On	On / Off
PWM Max	100	1 ~ 100
Quick Start	Off	On / Off
DTV LNA	Auto	Auto / On / Off
HDCP Download		
Test Pattern		

YC_Delay

Item	Default data	Range
PAL BG	1	0 ~ 3
PAL DK	1	0 ~ 3
PAL I	1	0 ~ 3
SECAM BG	4	0 ~ 7
SECAM DK	4	0 ~ 7
SECAM I	4	0 ~ 7
NTSC 358	1	0 ~ 3
NTSC 443	1	0 ~ 3
AV PAL	1	0 ~ 3
AV SECAM	4	0 ~ 7
AV NT358	1	0 ~ 3
AV NT443	1	0 ~ 3
AV PAL60	1	0 ~ 3

YC_Delay

Factory Name	Data									Range
	RF	CVBS	component		HDMI		DTV	"comp/HDMI/ DTV720p"	PC / HDMI PC	
			SD	HD (720p)	SD	HD(720)	SD	HD(720)		
H1 Gain	25	25	25	20	25	20	25	20	8	0 ~ 3F
H2 Gain	12	12	12	8	12	8	12	8	8	0 ~ 3F
H3 Gain	10	10	C	8	8	8	C	8	8	0 ~ 3F
H4 Gain	8	8	8	8	8	8	8	8	8	0 ~ 3F
V1 Gain	20	20	20	20	20	20	20	20	8	0 ~ 3F
V2 Gain	12	12	12	8	12	8	12	8	8	0 ~ 3F
H overshoot	20	20	20	FF	20	FF	20	FF	0	0 ~ FF
V overshoot	20	20	20	20	20	20	20	20	0	0 ~ FF
H undershoot	20	20	20	FF	20	FF	20	FF	0	0 ~ FF
V undershoot	20	20	20	20	20	20	20	20	0	0 ~ FF
Coring TH2	1	1	1	1	1	1	1	1	0	0 ~ F
Coring TH1	1	1	1	1	1	1	1	1	0	0 ~ F

PE

Factory Name	Data							Range
	RF	CVBS	component		HDMI	DTV	PC / HDMI PC	
			SD	HD				
Skin x	0	0	0	0	0	0	0	0 ~ 11
Skin y	0	0	0	0	0	0	0	0 ~ 11
B_slope	A0	A0	A0	A0	A0	A0	80	80~FF
DLC_ML	60	60	60	60	60	60	60	0~FF
DLC_MH	70	70	70	70	70	70	70	0~FF
DLC_H	EB	EB	EB	EB	EB	EB	EB	0~FF
Skin_SAT	0	0	0	0	0	0	0	0~F
Skin_HUE	40	40	40	40	40	40	0	0~7F
M_Skin_HUE	40	40	40	40	40	40	0	0~7F
M_Skin_x	0	0	0	0	0	0	0	0 ~ 11
M_Skin_y	0	0	0	0	0	0	0	0 ~ 11
Mid_color_level	180	180	180	180	180	180	180	0 ~ 255
M_Mid_color_level	180	180	180	180	180	180	180	0 ~ 255

PQ Others

Item	Default data	Range
7.5 IRE NTSC	On	On / Off
7.5 IRE	0	0 ~ 60

Color Space

Factory Name	"RFAV"	"Comp SDHDMI SDDTV SD"	"COMP HDHDMI HDDTV HD"	"RFAV"	"Comp SDHDMI SDDTV SD"	"COMP HDHDMI HDDTV HD"	"PC/HDMI PC"	Range
	Native	Native	Native	Auto	Auto	Auto	-	Color Space
Red Sat	4	4	4	0	0	0	0	0~F
Red Hue	40	40	40	40	40	40	40	0~7F
Green Sat	7	7	7	0	0	0	0	0~F
Green Hue	7F	7F	7F	40	40	40	40	0~7F
Blue Sat	A	A	A	0	0	0	0	0~F
Blue Hue	50	50	50	40	40	40	40	0~7F
Cyan Sat	A	A	A	0	0	0	0	0~F
Cyan Hue	50	50	50	40	40	40	40	0~7F
Magenta Sat	4	4	4	0	0	0	0	0~F
Magenta Hue	40	40	40	40	40	40	40	0~7F
Yellow Sat	2	2	2	0	0	0	0	0~F
Yellow Hue	40	40	40	40	40	40	40	0~7F
FWC CB	15	15	15	15	15	15	15	0~30
FWC CR	15	15	15	15	15	15	15	0~30

EEPROM RESET

Item	Default data	Range
EEPROM RESET	off	On / Off
NVR ALL Clear	off	On / Off

LNA Plus

Item	Default data	Range
RF dB1 Level	0	0 ~ 255
RF dB2 Level	3	0 ~ 255
RF dB3 Level	6	0 ~ 255
RF dB4 Level	12	0 ~ 255

5. Expert

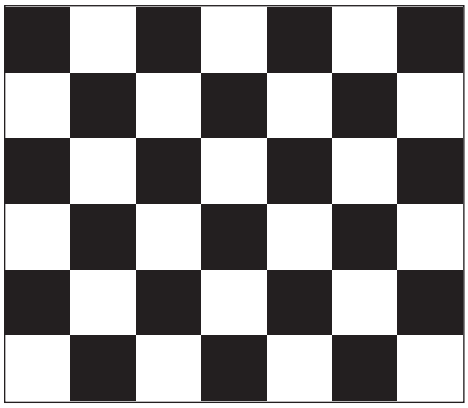
Item	Default data	Range
N / D ADJ		
SOURCE		

4-2-4 Service Adjustment - You must perform Calibration in the Lattice Pattern before adjusting the White Balance.

■ Color Calibration

Adjust spec.

1. Source : HDMI
2. Setting Mode : 1280*720@60Hz
3. Pattern : Pattern #24 (Chess Pattern)



(Chess Pattern)

4. Use Equipment : CA210 & Master MSPG925 Generator

※ Use other equipment only after comparing the result with that of the Master equipment.

Input mode	Calibration	Pattern
CVBS IN (Model_#1)	Perform in NTSC B&W Pattern #24	Lattice
Component IN (Model_#6)	Perform in 720p B&W Pattern #24	Lattice
PC Analog IN (Model_#21)	Perform in VESA XGA (1024x768) B&W Pattern #24	Lattice
HDMI IN	Perform in 720p B&W Pattern #24	Lattice

<Table 1>

■ Method of Color Calibration (AV)

1) Apply the NTSC Lattice (N0. 3) pattern signal to the AV IN 1 port
2) Press the Source key to switch to "AV1" mode
3) Enter Service mode
4) Select the "Calibration" menu
5) Select the "AV Calibration" menu.
6) In "AV Calibration Off" status, press the "▶" key to perform Calibration.
7) When Calibration is complete, it returns to the high-level menu.
8) You can see the change of the "AV Calibration" status from Failure to Success.

■ Method of Color Calibration (Component)

1) Apply the 720p Lattice (N0. 6) pattern signal to the Component IN 1 port
2) Press the Source key to switch to "Component1" mode
3) Enter Service mode
4) Select the "Calibration" menu
5) Select the "Comp Calibration" menu.
6) In "Comp Calibration Off" status, press the "▶" key to perform Calibration.
7) When Calibration is complete, it returns to the high-level menu.
8) You can see the change of the "Comp Calibration" status from Failure to Success.

■ Method of Color Calibration (PC)

1) Apply the VESA XGA Lattice (N0. 21) pattern signal to the PC IN port
2) Press the Source key to switch to "PC" mode
3) Enter Service mode
4) Select the "Calibration" menu
5) Select the "PC Calibration" menu.
6) In "PC Calibration Off" status, press the "▶" key to perform Calibration.
7) When Calibration is complete, it returns to the high-level menu.
8) You can see the change of the "PC Calibration" status from Failure to Success.

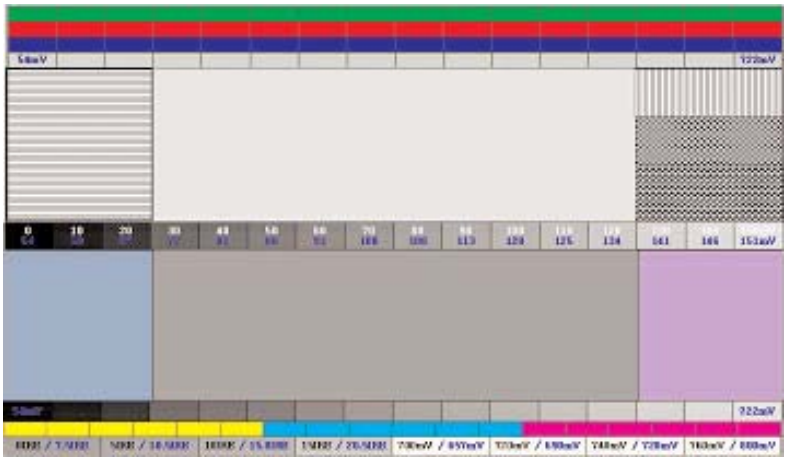
■ Method of Color Calibration (HDMI)

1) Apply the 720p Lattice (N0. 6) pattern signal to the HDMI1/DVI IN port
2) Press the Source key to switch to "HDMI1" mode
3) Enter Service mode
4) Select the "Calibration" menu
5) Select the "HDMI Calibration" menu.
6) In "HDMI Calibration Off" status, press the "▶" key to perform Calibration.
7) When Calibration is complete, it returns to the high-level menu.
8) You can see the change of the "HDMI Calibration" status from Failure to Success.

■ White Balance

Adjust spec.

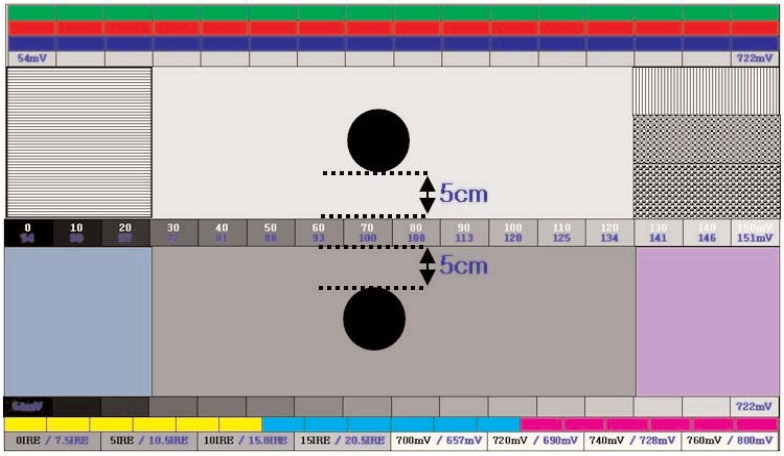
1. Source : HDMI
2. Setting Mode : 1280*720@60Hz
3. Pattern : Pattern #92
4. Use Equipment : MIK-7256 (MSPG925L)



(SAMSUNG WHITE BALANCE Adjustment PATTERN with FPD)

5. Work order

① Connect HDMI (DVI) output terminal of MIK-7256 (MSPG925L) to the HDMI input in main set
② Set the input to HDMI mode
③ Enter the White Balance menu of service mode
④ Contact CA-210 sensor to glass filter



(Fixed Position of CA210 Probe)

⑤ Adjust the low light
- Adjust Sub-Bright (LBE) to set the 'Y' value
- Adjust R-Offset ('x') and B-Offset ('y') to the color coordinates.
* Do not adjust G-Offset data

⑥ Adjust the high light.
- Adjust Sub-Contrast (LBE) to set the 'Y' value
- Adjust R-Gain ('x') and B-Gain ('y') to the color coordinates.
* Do not adjust the G-gain data

Input mode		(CA-210)		
		x	Y(L)	T(K), MPCD
CVBS (NTSC)	H/L	278	FIX	10,500 (± 0)
			(Sub_CT:128)	
	L/L	278	10.5 cd/㎡	11,000 (-3)
			(3.0 Ft)	
COMP (720P)	H/L	278	FIX	10,500 (± 0)
			(Sub_CT:128)	
	L/L	278	10.3 cd/㎡	11,000 (-6)
			(3.0 Ft)	
HDMI (720P)	H/L	278	FIX	10,500 (± 0)
			(Sub_CT:128)	
	L/L	278	10.3 cd/㎡	10,500 (± 0)
			(3.0 Ft)	

4-2-5 Replacements & Calibration

* PDP 42" Check items listed after changing each

Replaced assembly items	Check Items
ASSY PCB MISC-MAIN	1) Auto Program 2) White Balance Adjust
SMPS-PDP TV	Vs, Va voltage check and adjust
ASSY PDP MODULE P-LOGIC MAIN	Not to be adjusted
ASSY PDP MODULE P-X-MAIN	
ASSY PDP MODULE P-Y-MAIN	
ASSY PDP MODULE P-Y-MAIN SCAN BUFFER	
ASSY PDP MODULE P-ADDRESS E BUFFER	
ASSY PDP MODULE P-ADDRESS F BUFFER	
ASSY BOARD P-SIDE HDMI A/V	

* PDP 50" Check items listed after changing each

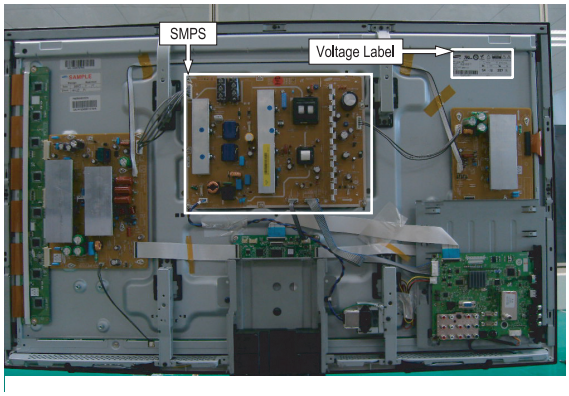
Replaced assembly items	Check Items
ASSY PCB MISC-MAIN	1) Auto Program 2) White Balance Adjust
SMPS-PDP TV	Vs, Va voltage check and adjust
ASSY PDP MODULE P-LOGIC MAIN	Not to be adjusted
ASSY PDP MODULE P-X-MAIN	
ASSY PDP MODULE P-Y-MAIN	
ASSY PDP MODULE P-Y-MAIN SCAN BUFFER	
ASSY PDP MODULE P-Y-MAIN SCAN BUFFER	
ASSY PDP MODULE P-ADDRESS E BUFFER	
ASSY PDP MODULE P-ADDRESS F BUFFER	
ASSY BOARD P-SIDE HDMI A/V	

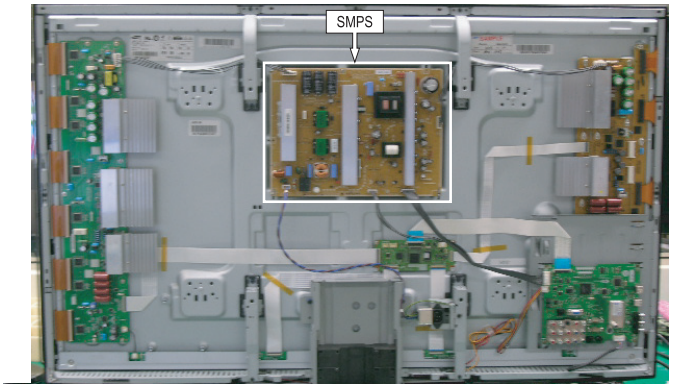
※ When replacing the SMPS or PDP panel, you have to check the voltage printed on the panel sticker and adjust it.

■ Voltage Adjustment

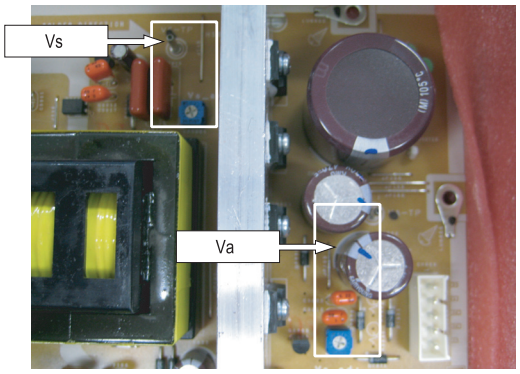
1. After replacing the SMPS or PDP panel, you must adjust the voltage referring to the voltage label printed on the panel.
   (If you do not adjust the voltage, an abnormal discharge symptom may appear.)

	Value	Board Adjustment
Vs	207	SMPS
Va	54	
Vset	-	
Ve	95	
Vscan	-190	





2. A point of adjusting SMPS-MAIN voltage.

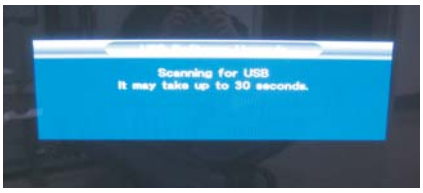


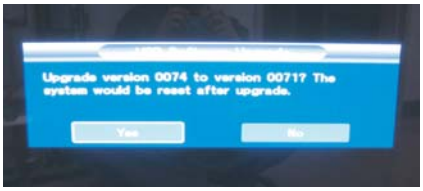
4-3 Upgrade

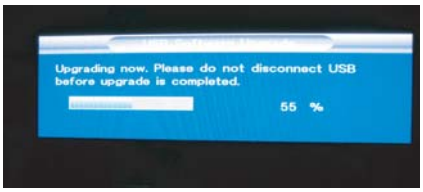
4-3-1 USB Download Method

1. Copy the Upgrade Files into the path "T-CRLAUSC" in USB flash driver.

2. USB Download
   ① Insert the USB Memory Stick to the USB port in Stand-by mode.
   ② Turn the power on.
   ③ Press "MENU" and find "SW Upgrade" in Menu "SETUP".
   ④ Select the "SW Upgrade" from the menu.
   ⑤ Select "USB" from the menu.
   ⑥ The banner OSD "Scaning for USB..." is displayed.
   ⑦ The banner OSD "Upgrade version **** to version ****" is displayed.
   Select "Yes".
   ⑧ The banner OSD "Upgrade version **** to version ****" is displayed.
   It takes about 30 sec.
   (Warning: Don't remove USB flash driver during upgrade.)
   ⑨ The banner OSD "Upgrade is completed" is displayed when the upgrade is completed.
   ⑩ Remove the USB flash driver from PDP TV and check the program version.

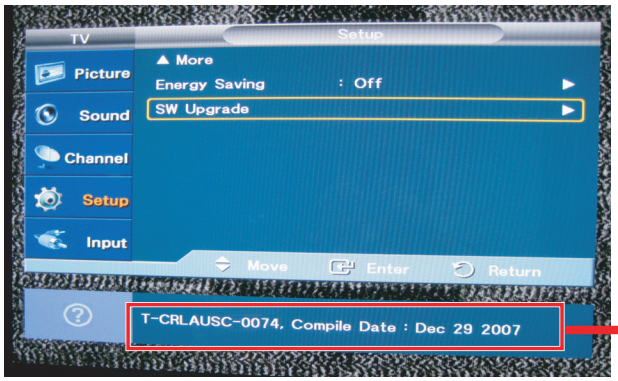




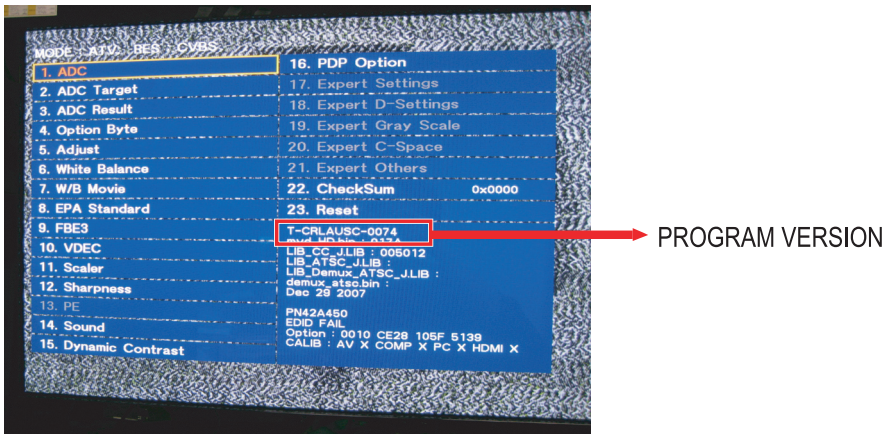


4-3-2 How to Check the Version of the Program

1. Procedures for checking in the User Menu
   ① Select the "Setup" menu in the Menu screen
   ② Place the cursor over the "SW Upgrade" of "Setup" and press the "info" key on the remote control.
   ③ The version of the program is displayed at the bottom of the Menu screen

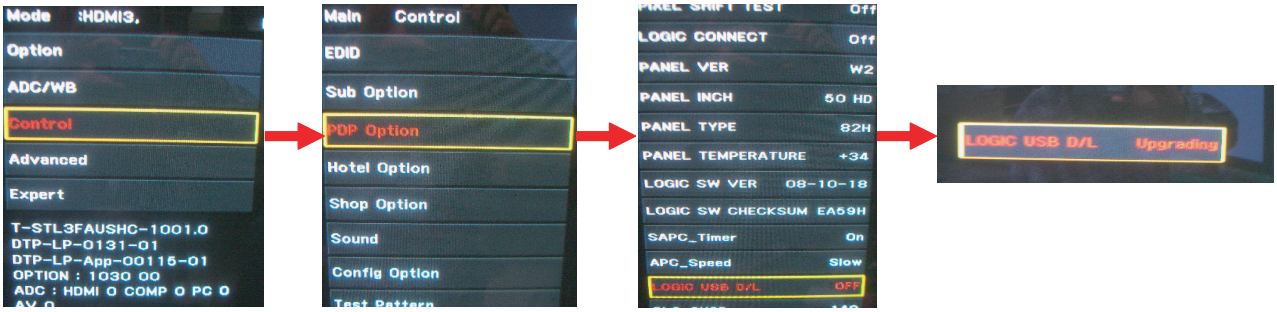


2. How to check Program Version on factory mode.



4-3-3 Logic SW Download(USB)

1. After inserting USB, start Factory mode by using mute+182+power. And follow the process order as below.

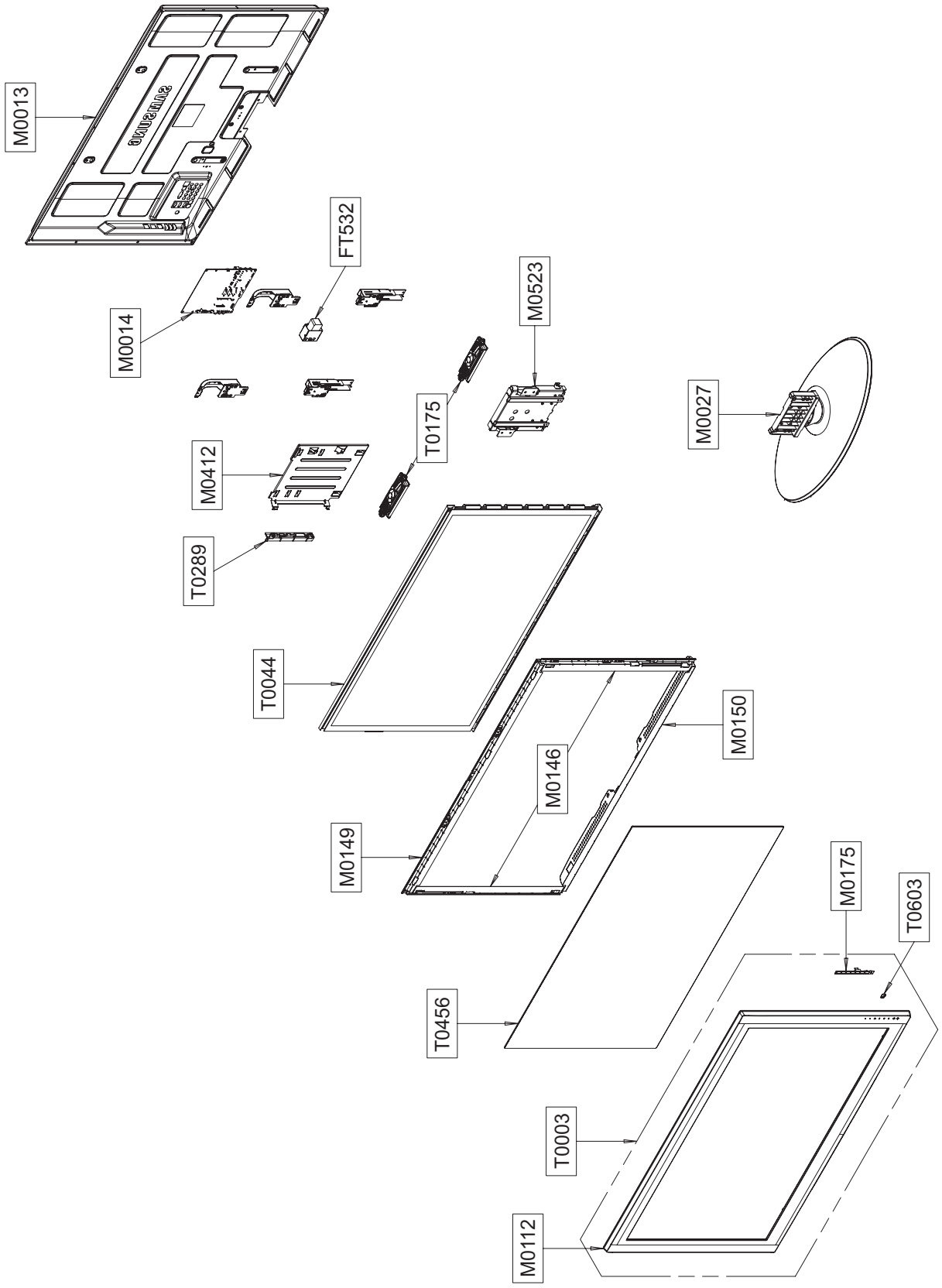


※ Shortcut to the Factory mode LOGIC USB D/L.
mute + 737 + enter

MEMO

5. Exploded View & Part List

5-1 PL50B450B1DXZX Exploded View



Loc. No.	Code No.	Description	Specification	Q'ty	SA/SNA	Remark
FT532	2901-001548	FILTER-EMI AC LINE	250V,6A,UL, CSA, VDE,	1	S.A	
M0013	BN96-10206A	ASSY COVER P-REAR	PB450 50,PCM,BKN P824,	1	S.A	
M0014	BN94-02841A	ASSY PCB MISC-MAIN	PN50B450B1DXZA	1	S.A	⚠
M0027	BN96-09927A	ASSY STAND P-BASE	42/50(PB450)	1	S.A	
M0112	BN63-05334A	COVER-FRONT	50PB450,ABS+PMMA,HB,ROSE BLA	1	S.N.A	
M0146	BN96-10235A	ASSY BRACKET P-FILTER SIDE	PB450 50,SECC	2	S.N.A	
M0149	BN96-10233A	ASSY BRACKET P-FILTER TOP	PB450 50,SECC	1	S.N.A	
M0150	BN96-10234A	ASSY BRACKET P-FILTER BOTTOM	PB450 50,SE	1	S.N.A	
M0175	BN96-10377C	ASSY BOARD P-TOUCH FUNCTION&IR	PS42B451B	1	S.A	
M0412	BN96-10232B	ASSY BRACKET P-PCB	PB450 50,SECC,T0.6	1	S.N.A	
M0523	BN96-10231A	ASSY BRACKET P-SUPPORT STAND	PB450 42,SE	1	S.N.A	
T0003	BN96-10204A	ASSY COVER P-FRONT	PB450 50,ABS+PMMA,TRD	1	S.A	
T0044	BN96-09790A	ASSY PDP MODULE P	S50HW-YD11,PP50HB056A,	1	S.A	⚠
T0175	BN96-09464B	ASSY SPEAKER P	8ohm,4pin,10W,R:850 / L:3	1	S.A	
T0289	BN63-05297A	COVER-AV	42PB550,ABS HB,BLK(BK500)	1	S.N.A	
T0456	BN67-00225A	GLASS-EMI FILTER	50" P450, with AR, W/O	1	S.A	⚠
T0603	BN64-01013A	WINDOW-RMC	42PB450,PC,VIOLET	1	S.N.A	

5-2 PL50B450B1DXZX Service Item

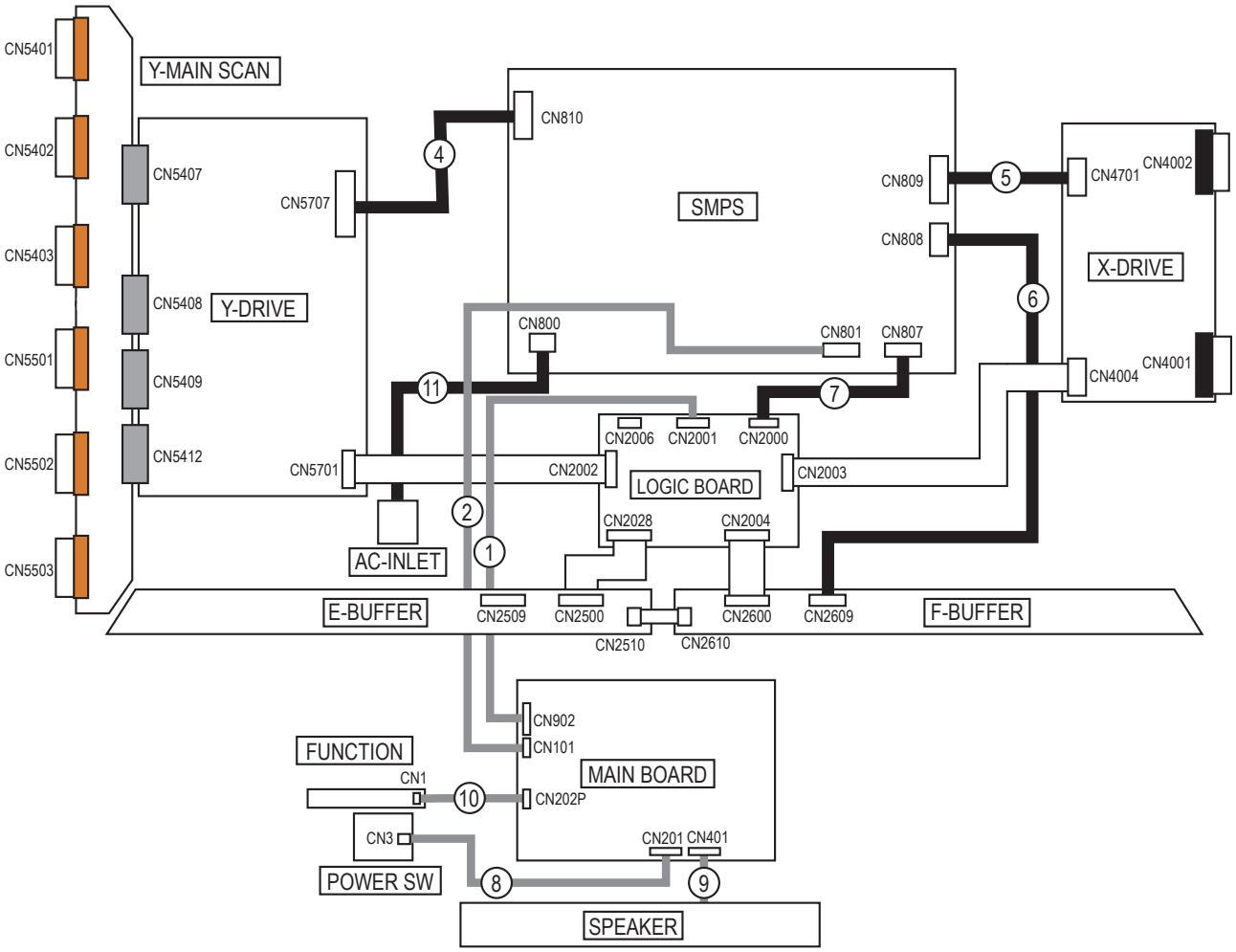
※ This is the list which is available to repair the real material at the time of service.

Loc. No.	Code No.	Description	Specification	Q'ty	Remark
M0013	BN96-10206A	ASSY COVER P-REAR	PB450 50,PCM,BKN P824,	1	
M0014	BN94-02841A	ASSY PCB MISC-MAIN	PN50B450B1DXZA	1	⚠
M0027	BN96-09927A	ASSY STAND P-BASE	42/50(PB450)	1	
M2893	BN39-00802S	LEAD CONNECTOR	LILY2 50",UL1007#26,24p/2	1	
T0003	BN96-10204A	ASSY COVER P-FRONT	PB450 50,ABS+PMMA,TRD	1	
T0037	BN96-09739A	ASSY PDP P-LOGIC MAIN BOARD	S50HW-YB04,P	1	
T0039	BN96-09741A	ASSY PDP P-ADDRESS F-BUFFER BO	S50HW-YB0	1	
T0044	BN96-09790A	ASSY PDP MODULE P	S50HW-YD11,PP50HB056A,	1	⚠
T0045	BN96-09736A	ASSY PDP P-X-MAIN BOARD	S50HW-YB04,PL50H	1	⚠
T0045	BN96-09737A	ASSY PDP P-X-MAIN BUFFER BOARD	S50HW-YB0	1	
T0074	BN59-00856A	REMOCON	LCD450,WHITE,TM950,AMERICA,48	1	
T0175	BN96-09464B	ASSY SPEAKER P	8ohm,4pin,10W,R:850 / L:3	1	
T0262	BN96-09738A	ASSY PDP P-Y-MAIN BOARD	S50HW-YB04,PL50H	1	⚠
T0764	BN44-00274A	SMPS-PDP TV	50U1_SS,PSPF520501A,AC/DC,43	1	⚠
T0937	BN96-09740A	ASSY PDP P-ADDRESS E-BUFFER BO	S50HW-YB0	1	

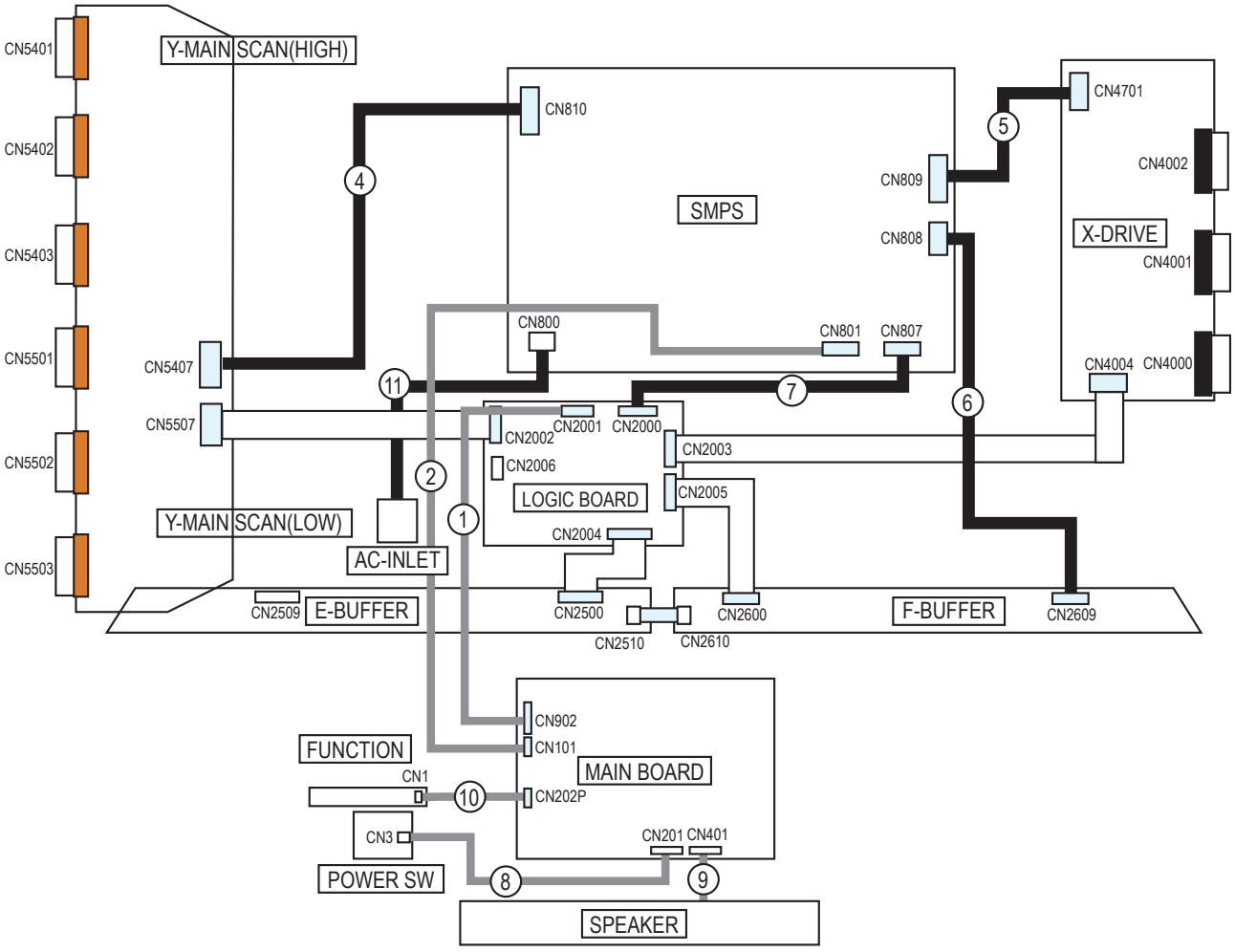
6. Wiring Diagram

6-1 Overall Wiring

<42" Overall Wiring>



<50" Overall Wiring>



※ The code number of cable(Lead-connector) can be changed, see "5. Exploded View & Part List."

Use	① LVDS	⑧ POWER CABLE	⑪ AC INLET
Code	42" - BN96-07158K 50" - BN96-07158F	42" - BN39-00802C 50" - BN39-00802S	BN96-07190A
Photo			

6-1-1 Pin Connection

① CN902(MAIN B'D) ↔ CN2001(LOGIC B'D)			
Pin No.	Signal	Pin No.	Signal
1	RxIN1b-	16	GND
2	RxIN1b+	17	RxIN3-
3	RxIN0b-	18	RxIN3+
4	RxIN0b+	19	GND
5	RxIN0-	20	I2C_READY
6	RxIN0+	21	GND
7	GND	22	3D_SYNC
8	RxIN1-	23	GND
9	RxIN1+	24	UART Tx
10	GND	25	GND
11	RxIN2-	26	UART Rx
12	RxIN2+	27	Start_OPT
13	GND	28	SCL
14	RxCLKIN-	29	GND
15	RxCLKIN+	30	SDA

② CN101(MAIN B'D) ↔ CN801(MAIN SMPS)			
Pin No.	Signal	Pin No.	Signal
1	PS_ON	13	D5.3V
2	VS_ON	14	D5.3V
3	STBY	15	D5.3V
4	GND_STBY	16	D5.3V
5	GND_15Vamp	17	GND_15V
6	GND_15Vamp	18	GND_15V
7	15Vamp	19	D15V
8	15Vamp	20	GND_15V
9	GND_5.3V	21	D15V
10	GND_5.3V	22	D15V
11	GND_5.3V	23	AC_DET
12	GND_5.3V	24	NC[Vt]

④ CN810(SMPS) ↔ CN5707_42"(Y B'D) CN5407_50"(Y B'D)	
Pin No.	Signal
1	Vs
2	Vs
3	GND
4	Vg
5	GND
6	Va

⑤ CN809(SMPS) ↔ CN4701(X B'D)	
Pin No.	Signal
1	Vs
2	Vs
3	GND
4	GND
5	Vg

⑦ CN807(SMPS) ↔ CN2000(LOGIC B'D)	
Pin No.	Signal
1	D5.3V
2	D5.3V
3	GND
4	GND
5	Vg

⑧ CN201(MAIN B'D) ↔ POWER&IR	
Pin No.	Signal
1	IR
2	GND
3	A5V
4	LED_STB
5	BUZZER
6	KEY_INPUT1
7	KEY_INPUT2
8	GND
9	NC
10	NC

⑨ CN401(MAIN B'D) ↔ SPEAKER	
Pin No.	Signal
1	R+_OUT
2	R-_OUT
3	L+_OUT
4	L-_OUT

⑪ CN800(SMPS) ↔ AC INLET	
Pin No.	Signal
1	AC Neutral
2	N/C
3	AC Live

6-1-2 Connector role

42" Loc. No.	50" Loc. No.	Description
CN5401	CN5401	Horizontal Y-scan line(1~128) of Module and Y-Main Scan Connect
CN5402	CN5402	Horizontal Y-scan line(129~256) of Module and Y-Main Scan Connect
CN5403	CN5403	Horizontal Y-scan line(256~384) of Module and Y-Main Scan Connect
-	CN5512	Y-Main Scan(High) and Y-Main Scan(Low) Connect
CN5501	CN5501	Horizontal Y-scan line(384~512) of Module and Y-Main Scan Connect
CN5502	CN5502	Horizontal Y-scan line(512~640) of Module and Y-Main Scan Connect
CN5503	CN5503	Horizontal Y-scan line(640~768) of Module and Y-Main Scan Connect
CN5407	CN5407	Upper Y-Drive and Y-Main Scan Connect
CN5507	CN5507	Lower Y-Drive and Y-Main Scan Connect
CN5707	CN5507	Vs(205V),Vg(15v) Power input connect(6Pin) of Y-Drive
CN5701	CN5701	Y-Drive control signal from Logic Board
CN810	CN810	Vs(205V),Vg(15v) Power input connect(6Pin) of SMPS for Y-Drive
CN809	CN809	Vs(205V),Vg(15v) Power input connect(6Pin) of SMPS for X-Drive
CN808	CN808	Va(63V) ,5.3V Power input connect(3Pin) of SMPS for F-Buffer
CN807	CN807	Power input connect(10pin) for Logic Board
CN801	CN801	Image signal(LVDS) connect(41pin) from Main Board
CN800	CN800	AC Power input connect from AC-inlet
CN4002	CN4002	Horizontal X-scan line of Module and X-scan Connect(first Block)
CN4001	CN4001	Horizontal X-scan line of Module and X-scan Connect(second Block)
-	CN4000	Horizontal X-scan line of Module and X-scan Connect(third Block)
CN2000	CN2000	Power input connect(10pin) of Logic Board from SMPS
CN2001	CN2001	Image signal(LVDS) connect(41pin) of Logic board from Main Board
CN2002	CN2002	Y-Drive control signal of Logic Board
CN2004	CN2005	Address Data(684th~1366th) connect for F-Buffer board
CN2028	CN2004	Address Data(1st~683th) connect for E-Buffer board
CN2500	CN2500	Address Data(1st~683th) connect from Logic Board
CN2510	CN2510	Power input connect from F-Buffer Board
CN2610	CN2610	Power input connect to E-Buffer Board
CN2600	CN2600	Address Data(684th~1366th) connect from Logic board
CN2609	CN2609	Va(63V) ,5.3V Power input connect(3Pin) from SMPS
CN1101	CN1101	Power input connect(24Pin) from SMPS
CN2202	CN2202	Image signal(LVDS) connect(41pin) for Logic board
CN1605	CN1605	Function input(source,ch up/down...) connect on Main board
CN1404	CN1404	Video signal input connect form Side AV ass'y
CN1606	CN1606	Power SW input connect on Main Board
CN1203	CN1203	Speak out connect on Main Board
CN101	CN101	Video signal input connect on Side AV ass'y
CN1	CN1	Function input(source,ch up/down...) connect to Main board
CN3	CN3	Power SW input connect to Main Board